COMPUTERWORLD

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prize sought by AT&T, MCI and Sprint as the Wall Street firm wields the budgetary ax. Page 4.

Apple will release a flood of connectivity products aimed at large sites, but high prices may scare off buyers, Page 8.

Tandem bests IBM in benchmark competition to haul in a lucrative development contract. Page 23.

Computerworld Focus on Integration.



IRM hot. for DB/2

converts

BY AMY CORTESE

IBM has stepped up efforts to convert non-DB2 uners to relaconvert non-DSZ users to rela-tional ways. However, the re-newed conversion campaign is targeting customers of IBM's competitors rather than its own large installed base of IMS users. Many users faced with the daunting task of moving longcounting task of moving long-term investments in software from older databases to DB2 have resisted, choosing instead to maintain two databases. Al-though IBM seems to recognize

this dilemma and is encouraging coexistence between DB2 and the older IMS, the company has focused its effort to swing users of non-IBM database manage-ment systems to DB2.
Collinet Software, Inc.'s IDMS and IDMS/R were the

IDMS and IDMS/R were the first targets of an IBM conversion campaign in April, when IBM invited hundreds of IDMS users to its offices throughout the U.S. to view a telecast on IDMS-to-DB2 conversion. The

BY MICHAEL ALEXANDER

Little Silence just didn't know Little Silence just defir t know when to shut up.

In the first few months of 1989, the computer hacker ailegedly made hundreds of unauthorized telephone calls to some
60 corporate voice-mail comput60 corporate voice-mail comput115 in.

er systems across the U.S., in-cluding 332 calls in one month to a computer system operated by a real estate firm in the Chicago

suburbs. Once inside the sys-tems, the backer would allegedly exchange illegally acquired com-nany credit-card and long-dis-

Systems snafu stuns Sun

BY JEAN S. BOZMAN

MOUNTAIN VIEW, Calif. - It ilt computers for the world, it Sun Microsystems, Inc. led to properly install a powerfailed to properly install a power-ful mainframe system to ru: its own \$1 billion-plus business.

Last week, the company ad-mitted that a botched outover from a Hewlett-Packard Co. minicomputer to an IBM-com-

unicomputer to an inter-countrible mainframe complex new a monkey wrench into un's bustling business, delaying ocusands of orders. As a result, um acknowledged that it may out its first quarterly loss since

it went public in 1986.
Sun held a nationwide tele-phone press conference in New York after the close of trading Thursday to warn Wall Street that fourth-quarter revenue may fall below the \$497 million mark posted in the third quarter. That result would be "significantly result would be "significantly" below the fourth-quarter size for the corresponding period in 1988. Sun and. But Scott McNealy, chief executive offi-cer, claimed the bad news would not persist beyond the current quarter ending June 30. Bellwether users said their confidence in Sun has not been

Feds whack hacker ring

nce calling-card numbers with her hackers, federal law en-rement authorities said.

ers are the targets of a fourrs are the targets of a rour-bouth-long investigation that as involved the U.S. Secret ervice; the Federal Bureau of sweetigation, state and local law enforcement officials in several states; the Royal Canadian dounted Police; and security

and information systems person nel at several telecommunica

lephone companies. As many as 50 hackers with

tions companies, in tions Co., MCI C Corp. and nearly all the rep

ment authorities said.

Down to earth After exjoying years of record growth, Sun Jears it may see a loss this quarter



shaken by the news. Frank Dushaken by the news, rrams Ju-quette, technology director at Greenwich, Conn.-based Green-wich Capital, acknowledged that his company has seen delivery delays of up to 30 days on Sun products. "But it doesn't after our confidence in the company, be added, echoing the sent ments of other users.

McNealy cited several factor

internal systems problems were tagged as the main culprit, he said these and other factors call into question the ability of the Sun management team to keep pace with the company's mete-oric rise over the past several

Another factor, McNeal id, was the April 12 introdu tion of five new products, w greatly increased the comple of internal billing, ordering shipping. In an interview

however, he made no mention of the company's impending prob-lems (see story page 81). "It's bound to happen — my first bound too happen — my time a plane climbs an fast as Sun Microsystems deeps, it can begin to shudder and to shake ... and you hope the wings don't fail off, "and Richard A. Shaffer, odi-tro of "Technologic Computer Letter." "San is savolved in so many different markets, in so many different markets, in so many different markets, in so

FORFIGN ACCENT

IS seeks opportunities as a united continent looms

ald all be conce "We should all be concerned about the future because we will have to spend the rest of our lives there." Charles Franklin Kettering



why this preoccupation with the Old World? When the hold at midnight on Dec. 31, 1992, the economic vagaries to the hold at midnight on Dec. 31, 1992, the economic vagaries to the hold of the European business community

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comes up roses. NETWORKING

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ARCHIVE

his week is one for

the legal historians.

Eight years ago, IBM and the U.S. Department of

Justice rested their cases after

12 years of antitrust litigation. Seven months later, the Justice

Department dropped the suit. In

revision of the Communications

deregulated that business would

become. In 1982, a former IBM employee went on a shooting rampage in Bethesda, Md., killing two IBM employees. And in 1985, a California jury ordered

NCR to pay \$5.8 million in damages for misrepresenting

one of its systems to a

customer

1978, Congress prepared to consider a "deregulatory"

Act, not knowing how

MANAGERIC IOURNAL

40 ASM's new head hon cho wants his colleagues to

keep an eye on the but pic-

COMPLITER INDUSTRY 81 Sun's McNeely place

EXECUTIVE REPORT

57 IS executives struggle to prepare the way for comnuter-supported teamwork

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CD-ROM ▶

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Stephen Morse does not dream about work group computing, he builds it. Page 57.

AND TREAT AND

EXECUTIVE BRIEFING

■ Some leading-edge IS organizations are making their plans today for the 1992 easing of trade restrictions in Europe The chief business forces expected to shape IS management for the 1992 switchover include a rearrangement of resources, the need for improved communications and the ability to handle expanded business throughout the European Community, Page 1, Last week. GE positioned itself for 1992 when it outlined its global network plans for the com-ing decade. Page 109.

■ IBM is trying to drive mainframe shops into the relational world of DB2 through a new promotional campaign. But the effort targets users of IBM competitors' database management systems, not those running IBM's own nonrelational IMS product. Page 1.

■ The take may have been as high as \$1.5 million, said investigators who broke up one of the first voice-mail computer fraud rings. Eight hackers allegedly used voice mail and compers to bilk firms. Page 1.

■ Two seemingly unrelated trends — the growth of systems integration firms and the move toward downsizing

- are converging. Surprisingly, systems integrators seem to be continuing their focus on mainframe applications despite the handwriting on the wall. Efrem Mallach takes a look at the implica-tions of the merger of these trends in his Viewpoint column. Paute 21.

■ President of Sun Micro-systems, Scott McNealy, is blaming IS failures for his documentation, management reports and market research. firm's problems — as he stares at plummeting earn-ings figures. Page 1. But be is still touting his company's Sparc technology and Unix as gospel for the computer industry. Page 81.

■ Local IS organization luncheons may have a reputation for blue meat and boredom, but there may be added benefits to getting be saded benefits to getting out of the office for a couple hours every month to attend such a function. Robert Har-grove tells how to traverse the hunch circuit and come away with something worth-while Page 21.

■ Could the growth of end-user computing mean an expansion rather than a contraction of the scope of the TS function? Research by The Diebold Group indicates that may be the case. Page

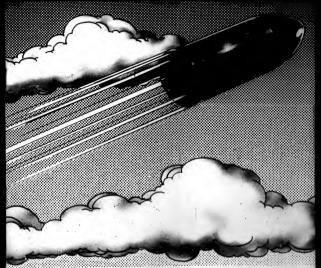
A \$1 million trans tion processing bench mark procedure put Tandem Computers over the top in a competition with IBM for a key contract with the California Department of Motor Velocies, Page 23.

> ■ It's been a "maturing technology" for four years. Now, CD-ROM is fi-nally making its way into the world. There is a ground swell of CD-ROM activity behind the scenes at Fortune 1,000 companies and govern-ment agencies, which are us-ing CD-ROM as a strategic information management tool. They are managing and distributing massive amounts of critical, internally published information such as policy uals, product catalogs

Work group computing may be more of an ideal than a reality, as most organizations struggle to define what it is and what it will require, Page

■ The technical advances in telecommunications that large organizations take advantage of are also putting those business and govern-ment organisations at risk. ment organizations at rais.
They are becoming more and
more vulnerable to natural
and man-made disasters, according to a federal report.
Page 41.

to take the R to take the Renaissance man uppraised to their ca-reers and see the many facets of the profession, according to ASM's new President



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All that glitters is not gold

Net heavies tre to dazzle Drezel — but with a few strings attached, of course

BY ELISABETH HORWITT

NEW YORK - In its quest to row rown — In its quest to consolidate resources and cut costs, Drexel Burnham Lam-bert, Inc. has put itself up for grabs in the rapidly encalating turf war between the three ma-ing long-distance. jor long-distance carriers. MCI Communications Corp., AT&T and U.S. Sprint Communications Co. are wooing the cost-con-scious Wall Street firm with whopping discounts and carte

nche network managemen However, the strings at tached to such offerings are like by to tie up Drexel's communica-tions budget for years to come

mpany spokesmen said. Drexel'a dilemma is a familia for Fortune 500 service firms whose informational life blood runs through their networks. Upper management about 10%, off Drexel's annua mications budget and increase reliability at the same

To accomplish this, the com-nications department formu lated the plan of consolidating voice and communications over a ungle intelligent network back-The question is whether to on with carrier services or a pri

Drexel does not feel ready to ralize responsibility and take charge of its own network.

or can ensure acceptable relity and respon at least at a reasonable cost, said Charles Koman, vice-presi-dent of communications. "They say. For the right price, we'll do everything,' but we don't know the price yet," he explained.

A row deal AT&T has been sending the

same message to all its major accounts, according to Koman — namely, " 'Our business is being fed: we'll deal if you commit a

major portion of your busi-Meanwhile, Sprint and MCI which had previously concen-trated on taking bites out of ex-

isting accounts, are responding to AT&T's Tariff 12 offerings and cuts to regular services with ecial deals of their own, saving in effect, " 'Oh, yeah? We'll tra to take it all away, then," Ko-The escalating competition

has proved a mixed blessing for Drexel. All three carriers came back with promises to cut be tween 35% and 45% off the investment firm's current budget, "which surprised us," Koman said. "We hoped for 20% to

However, the vendors wanted multiyear agreements that included penalties for failure to meet certain revenue thresholds, Koman said. "We weren't fortable with this " he coul

ed a second round of negotiaand commitment levels The firm hopes to decide which network provider or providers to po with by the end of this month.



skepticism toward the pendors While it bargains with the car-

riers, Drexel has a "parallel proj ect going" to evaluate private networking - and particularly network management — solu-tions, Koman said. "We want to see how much network management we can do with the people we have and canned network management software," he add-Among the products under

consideration are AT&T's Uni-fied Network Management Ar-chitecture (UNMA), Timeplex, Inc.'s Timeview and IBM's Net-

Most likely, "there will be two ways to view the network -

After computers are selected and installed, spacecraft launch dates may be delayed by several

One result of the technology

up is that NASA must scale

own its space missions to those

that can be supported by the old processors, the GAO said.

For example, the unit

outer limitations

newer, more powerful comput

ers quickly enough to support its

ambitious plans for future mis-

conservative.

computer system early in the development stage.

• NASA managers tend to be selecting older computers with proven reliabil-

sponse to the report. Rosen noted that, in addition to ongoing research programs to develop special-purpose com-puters and optical data storage systems, NASA has decided to

nd rover expected to explore Mars in 1998 may be restricted to traveling a total of only four use the 16- and 32-bit space computers that are being devel-oped by U.S. defense agencies for the Strategic Defense Initiamiles in 235 days as a result of The question is whether NASA can develop and deploy An IRM Systems Integrati

Division spokeswoman working with NASA in Houston said that while the AP101 and AP101-S have origins in the IBM 360, the GAO said. Future space missions will require prothey do not use the same pro sors capable of 10 to 25 MIPS to control robots and proor technology as the 360 "They are many generations away from the 360. They are cess streams of observation Robert Rosen, deputy chief of NASA's Office of Aeronautics fixed avionics pro Sonce Technology, said

Netview or UNMA - with a door open to migrate more fully into either system," Koman said. Netview will definitely not be the COMPLITERWORLD erall system, at least for a while, because 90% of the comnany's traffic is voice-oriented. and IBM's system will probably not be able to handle telecom-

is Water, many at Berwitt, Network ten Keele, Networks Barwer, Pr. & Work andry Gheen, Softworkershee, Pr. & Westernary Hamilton, System Margain, Indion, Welfare

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munications during affectively for about five years, according to Kam M. Saifi, assistant vice-president of communications Drevel wants a man system that can take a lot of the grunt work off come

pers' shoulders, Koman in-"We want a lot of red nd a network that beals itself. he said, because Drexel sites do not send "a lot of low-priority

"We won't be able to say, 'If I lose this, I can bump that.' It's all hot," he added. The goal is for the system to "take the heat off work centers in terms of fixing immediate failures." added, freeing managers up for more active work such as anticiting and fixing response-time problems before they become

Consolicated network may agement wil also give comuni-cations managers "the big pic-ture" of network usage, he said, potentially allowing them to pinoint ways to cut costs in a systematic, comprehensive way

For example, the department only recently consolidated billing for various departments' usage of packet-switching services, discovering that Drexel qualified for a volume discount. Total savings so far amount to \$200,000

NASA is aware of the proble with outdated computers and is

taking steps to reduce the tech-

One year at a time However, "it is unreas expect to see the technology gap reduced significantly below the four to six years required to space-qualify computers," Ro-

Locy Zerois Seeder With

Space shuttle computers need a high-tech boost the space shuttle was first flown

BY MITCH BETTS

WASHINGTON, D.C. - The U.S. space program may be known for its dramatic advances in technology, but a revealing study by the U.S. General Ac-counting Office (GAO) has found side U.S. spacecraft is often 8 to

20 years old.

Take the space shuttle. The personal computer on your desk-top probably operates faster and has more memory than the shut-The space shuttle use

AP101 processors — a milita-rized version of the IBM 360 technology introduced in 1964 —featuring a 16-bit microng at 400,000 instructions per second (0.4 MIPS) and 104K bytes of ran-

in 1981, the computer system en for it in 1971, the GAOszid The National Aeronautics and ace Administration plans to

use its first 32-bit architecture in the orbiting space station, which will use the Intel Corp. 80386 chip. Of course, by the time the pace station is launched, in 1995, the 386 will be 10 years

GAO and NASA officials said there are four main reasons for the technology gap: Computers must be modified to withstand a harsh space envi-ronment, including exposure to

tion, high-energy particles and extreme temperatures, in a thy process known as space ecause a spacecraft's com-er is such an integral part of design, NASA chooses a

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NEWS SHORTS

CONTROL BUSYT
The economic shamp that hit Silicon Valley in 1985 and '85 stood the everage wage in the high-tech industry there to voy compared with levels of 17 years ago, a recount study consisted of the industrial valued wages per worker were \$8.5000 The industrial valued wages per worker were \$8.5000 The industrial valued wages per water in 1980, down from his in 1972 level of \$7.790, according to the report from the Association of Bay \$1.5000 to \$1.5000

ntrol Data Institutes sold

whereis Dertre Insathtures sold insing the cont-catility is began in Agri with a \$450 mil-sent-christig change, Control Dist Corp, but week odd in sent-christig change, Control Dist Corp, but week odd in the control Technology (CII). In Silvan of the Control Control Control Corp, CIII, in Silvan of the Control Co

nese changes urged

ling Edge deal claser Telecom Co. last week signed as of By troubled Leading Edge Product

ce closes data center last week that down Pean Mutani Life Insurance Co.'s hardwaystern and forced the company to run com-

Users cool to EMC 3090 memory extensions

BY ROSEMARY HAMILTON

EMC Corp. tried to do 3090 memory cheaper than IBM. Now, it is trying to do it better. Even still, users are slow to warm to the third-party provid-

Last week. EMC offered users twice the amount of memory that IBM provides on low-end 3090 E models while also offering an asymmetrical capability for them. IBM offers the asym metric feature- which all users to configure memory in dif-ferent amounts on the two sides

of a processor complex — on 3090 S models only. While analysts last week viewed this step as positive, 3090 users were not quite as up-beat. Some 3090 shoos said EMC's actions were interesting, but they continue to express doubts about doing business with anyone other than IBM when it

DB2 converts

telecast coincided with the publi-cation of an IDMS-to-DR2 con-

FROM PAGE 1

comes to their 3090s. "I view it as scary becomes

you'd have to play around with the system a bit to do this," said John Wood, director of computer operations at the Royal Bank of perations at the Royal James or anada in Toronto. Jeffrey Goldberg, vice-presi-lent of sales at EMC, said both options require minor changes to

he system parameters, which ell the CPU how it is configured. coldberg said that the low-end E models were designed to accom-modate the additional memory, but IBM has established a lower amount as the maximum to en-courage upgrades. So EMC needs only to change the param-eters that tell the system how

much memory it has Volting for IBM Others are not so sure. Camber Corp., another 3090 memory provider, said it does not plan to take any of these steps until IBM

Wood said he agrees that

count management point of view, it's to IBM's advantage having customers use [IBM's] database," said Charles Bach-

database," and Charles Bach-man, president and founder of Bachman Information Systems in Cambridge, Walia. He noted that customers with IBM DBMSs are also major users of other IBM equipment, such as direct-scores torange devices. Robert Weiler, president of Cullinet, stated that his firm's customers are not interested in replacing DMS but rather in co-cessisting with DB2. Weiler char-acterised the convergion process. version guide and a promotion offering discounts and incentives to new DB2, SQL/DS and Cross System Product customers. Similar blitses are schedu within the next few months for Computer Associates Interna-tional, Inc.'s Datacom DB, Soft-ware AG of North America's Adabas and Computer Corpora tion of America's Model 204. existing with DB2. Weiler cnar-acterised the conversion process as "a bear," adding that IBM's conversion guide is "essentially how to rewrite all your applica-tions in DB2." Weiler said that although Cullinet does not offer coexistence facilities, it plans to Russ Donovan, database ma

Russ Denovan, database mar-keting support manager at IBM's Applications Enabling Marketing Center, said a big selling point for DB2 is its key role in IBM's Systems Applica-tion Architecture acheme. In addition, he said DB2 users gain the benefits of relational technolver, one Culti Gail Port, vice-president of prod-uct development at Citibank's ogy over older, none products such as IDMS

IBM cites the costs of main-taining two DBMSs as further reasons for undertaking a con-version. However, uners who keep IMS and DB2 must still pay

While the company stress that all new applications should be developed on DB2, it is pouring resources into making its BMS coexist with DB2. Donovan denied that converting from IMS to DB2 is unduly complex but said conversion was not neces-sary because the two databases can work together.

Nonetheless, there are obvi-

ous marketing reasons why IBM would not want its customers to migrate from IMS. "From an acIBM's memory limitations are marketing-driven, but "violating the system's architecture isn't the substice."

e solution. But with EMC's plan, user sted in an asymmetrical bility do not he the S processors. The offer of the S processors. The offer of twice the memory on two low-end E models, the 180E and 280E, could be a boost to users who need more memory but do not want to spend the money to

upgrade their processors.
EMC said it will install up to
128M bytes of central storage
and 512M bytes of expanded and 512M bytes of expanded storage on the 180E. It will also install up to twice the amount of memory on the 280E by config-uring up to 256M bytes of cen-tral storage and 1G byte of ex-

not sure the 180 would give you the power to drive that extra memory," said Carmine Melito, senior product analyst consul-tant at Allied Signal, Inc. in Mor-

ristown, N.J.

David Vellante, an analyst at
International Data Corp. in Framingham, Mass., said EMC's offers could help users get around IBM's limitations, which are strictly marketing-driven.

North American Finance Group in New York, is gradually replacing IDMS with DB2. Although a come IDMS databases are being redesigned and converted to DB2, in other cases, the convenient of the contrast, as the convenient of the contrast, as contrast, as contrast, as many consultance of the convenient of the convenie

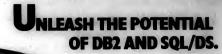
inge for the sake of chang-." The user, whose company eferred to remain anonymous, id that DB2 currently lacks stures that IDMS and IMS ve, such as row-level locking.

Although new developm at the company is being done on DB2, about 90% of the firm's ap-plications are IDMS-based. Senior Editor Stanley Gib-

Chiseling away at the competition

At the expense of others, DB2 is projected to gain ground in installed base among IBM 370-twie DBMSs





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Apple mounts big network wave

BY PATRICIA KEEPE

NEW YORK - Apple Cor er, Inc. will open the flood nunications products de-d to pump up IS interest in

its Macintosh workstatoom.

The sometimes pricey lineup, which is supposed to position Apple as a full-fledged supplier to enterprise networks, may disappoint IS managers seeking to diint IS managers seeking to di-citly connect the two environ-mts. If this happens, Apple and again fail to attract those counts analysts say it needs to ther in the Fortune 500.

A gateway approach to To-ken-Ring connectivity based on a \$1,200 Tokentalk card may not appease corporate users with a few stand-alone Macs among many PCs. They will find the

"extremely outrageous. "It's overpriced, I'll grant you that," said Price Collins, program manager at General Electric Co.'s internal network.

This situation could prove particularly dicay for Apple in view of IBM 5 officerwisin (CW, May 15 and 22), said consoltant Andrew Spickol, president of Computer Insider, "Officersision Mac than ever before," be pre-dicted, Users who want the Mac's graphical interface will find 15 meanagers touting Officersision layerphical interface will find 15 meanagers touting Officersion's graphics and abulity to the seamlessity into IBM brooks. Analle is a barvey concentration.

Apple is a heavy concentration on gateway, 3270 and inter-network products (see related

Appletails enhancements that significantly increase the number of nodes supported are welcomed by many Ethernet users. Improvements to Appletails would have insmediate impact, and Milke Baley, a systems integrator at Lockheed Missiles & Space. Bo Pittker, a system administrator at Pacific Bell Directions.

into Ethernet, which can extend letalk for miles, you can easi

Less pricey is a quartet of Spectrum Systems in New York will unveil a Mac version of its Xcom 6.2 file-transfer software. A version for OS/2 Extended Edition costs \$950. Cayman Systems in Cambridge, Mass., reportedly will unwrap s Localtalk-to-Token-

Ring gateway.

4 Assante Technologies, Inc. in
Sunnyvale, Calif., is expected to
introduce a Tolen-Ring card for
the Mac II for about \$800. the Mac II for about \$800.

e H-Three Systems Corp. in Research Triangle Park, N.C., will introduce Macring, the first in a family of Token-Ring cards for the Mac SE, SE/30 and II that

will support IBM's 3174 and To-ken-Ring Interface Coupler. Compatible with Novell, Inc.'s Netware, Macring for the SE is available now for \$795. Assante and H-Three's pric-

Assante and H-Three's pric-ing is more in line with the typi-cal cost of a Token-Ring card for PCs, which averages about \$600 to \$700. The long-overdue To-kentalk card will cost as much as \$500 to \$600 more.

Apple-IBM linking products to come

kentalk NB Assport — a m em unyen-bus-based card resides in either a server or statation. IBM Server Message Block proto-support allows file transfer between Macin-thes and PCs. Priced at about \$1,200, it is toshes and PCx. Priced at about \$1,200, it is acheduled to ship in the third quarter. Applicable 2.0 — This system network reportedly will support up to 55,000 modes. It is available now, possibly as a free upgrade. Applicable internet Router — This product reportedly can tie up to eight Applicable networks toughthe into a virtual network; multiple routers can be linked together. Pricing it about the product of the price of the product product of the price of the price

the LUS2 antwers works with Takesmit to chee Whe application to tall with programms that support IMN* LUS2 running on Tokes-Right Resident for the part of delivery. He satisfied for their part of delivery. He satisfied for their part of delivery. He can state a single part of delivery. He can state a single evolution networks. Decrease as easily good to the wide-even setward, we can use a single evolutation or the server as a easily good to the wide-even setward. We note that the control of the server as easily good to the server as easily good to the server as easily good to the STO of primar leading to the STO oscillation and in Case Primars Card, will expand applie to the STO oscillation and file exchange between

works with 3270 not were to make the user to talk to conquere on an IBM Systems Network and the contract of th

on-board processor transmer processor transmer processor transmer processor. And the condoct Train-equator delivery is expected. — This enhancement or explanation or PCO. — This enhancement or explanation or PCO. — This enhancement or explanation or processor training to the PCO. — The support for PCO. DOS is enhanced to the processor of the PCO. — The State of PCO. — The PCO. — Th

elivery is expected.

Also expected is X Window System support CL/1 server products for MVS and VMS.

MAI back to square one. scales down Prime offer

BY NELL MARGOLIS

MAI Basic Four, Inc. decr its \$20 per share offer for Prime Computer. Inc. to \$19.50 last

to 200 per share offer for Prime to 200 per share offer for Prime week, sanding one of the com-porter industry's most convolut-do to 200 per share of the com-porter of the company of the "fa" or right tack to square one," and Stephen Dube, as more "fa" or right tack to square one," and Stephen Dube, as manufactured to the more than 6-month-long hattle over than 6-month-long hattle partied "Ti's a possible "fail pur partied" "It's a possible "fail pur the Reproduct. The Prime/MAI of Servers, an enalty at Dem Wit-ter Reproduct. The prime fail, be should. The species to meminigate at the meminigate of meminigate at the meminigate of meminigate at meminigate

iess predictions."

On May 15, Prime Chairman
David Dunn challenged MAI
Chairman Bennett LeBow to
make good its vaunted \$20 per
share — or \$970 million — offer share—or \$970 million—office by June 2 or call it off. To give MAI a shot at achieving its goal, Prime temporarily removed a series of legal impediments to the tender offer, including a so-called poison-pill provision. MAI replied only that it was evaluat-ing all the prime of the office.

ich extends only to outstan ing shares — about 75% of Prime's total — the new deal proposed that the remainder be ime replied ternely that its MAI's latest terms but with "se-

vised offer."

When Prime issued its mid-May ultimatum, analysts noted that any retreat from MAI's original offer would be seen as a sign that the company could not raise the money necessary to complete the deal.

ustion will revert to its pre-May 15 status, with the players in le-13 status, with the puryers in iegal battles and fast approaching a
proxy light, slated to take place
when Prime holds its annual
stockholders' meeting June 14.
MAI's markdown of Prime,
Dube said last week, triggered

just such an unfortunate scenar-io. "The market shrugged the [restated] offer off," be said. The fact that MAI's perceived backact that MAI's perceived back-if a comparatively minor, from the financial viewpoint, discon-perted rather than reassured harket observers, be said, a sore significant reduction might ave talten MAI out of the game; \$20 offer might have handed them a victory. As it is, Dube

said, "we're going to go down to the wire on this one."

Sun FROM PAGE 1

The biggest danger is that man agement is going to be stretched

Regarding the systems prob-lems, McNealy said Sun installed an Amdahl Corp. 5890 Model 190E, a National Advanced Sys-tems AS/XL50 and a NAS AS/EX70 last year and started testing new applications for a nned conversion.

planned conversion.

"For the last as months, we ran the systems in parallel, sending application data back and forth. But at some point you've got to unplug the old system and plag in the new one. Then you look for the little braudifiers, and you got them or." he said.
"The Colline's transition cost us time," McN-tally went on.
"We serven't able to stop time while we switched over. It's unlike we switched over. It's

matter of a week or two loss, but that can awing a big revenue number when you're growing as fast as we are. It's a tightrope we've walked because of our

Cullinet's president, said of the Cullinet

Manufacturing System, "Implementation is a complex process. Sun is à valued customer for Cul-linet. We supported them during this implementation, and we will

For two to three weeks after the cutover, the order entry system was in gross disarray and production orders were disorganized. Key components for older Sun systems were not stacked on the storeroom shelves, and orders for those products still in strong demand went unfilled as

nerong denium wert uniased as new components were ordered, McNealy said.

Sun's orders for Sun-3 and Sun-4 workstations — as well as for the five products amounced April 12 — have been stacking This resulted in custom shipment delays that lengthened from 30 days after receipt of or-

from 30 days after receipt of or-der to as long as 60 days. "Most of our products are in the 45-day time frame now, and that is long-er than we would like," McNealy said. He said be expects a return to 30-day shipments by July. Other factors leading to the loss, McNealy said, were im-

er Sun products were stronger than forecast, and orders for the new products have lagged be-hind forecast. The exception is the Sparcecation 1, which is exsencing strong sales in Eu

rope.
McNealy didn't rule out so shuffling of Sun's corporat restuting of Sun's corporate structure but stopped short of calling it a reorganization. "There is a very strong trend to-wards simplification and focus," he said. Even the order forms themselves will be simplified: meetves will be nis melves will be simplified: splification is something we arked on six months ago, nd it's a priority with me." In hindeight, he added, Sun hould have anticipated that it ould hit a wall in terms of the HP system's capacity to cope with its work load. "People ask me what we could have done dif-ferently," McNealy said. "Three to four years ago, I would have made a decision to invest more heavily in information resource ystems to plan this tra to mainframes]. What hap

of growing into a \$2 billion comded to this report.

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IBM's 3090 add-ons feed power-hungry users

The Parallel I/O Access M

nd research firm. "I the I/O was the real li

The rollouts also mark an M commitment to major im-swements in its supercom-ter product line. An IBM obsessing said the claim that many as 12 processo gh-end ES/3090s offer o indicates that the cor

for example, preliminary is clear up nagging limits that we long dogged IBM's vector cilities, which can provide

fer network processor connec-tions for the HSC that will link the ES/3090s to the company's 1G bit/sec. Ultranet network.

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Most IS policies cover viruses

BY MICHAEL ALEXANDER

Though your firm's insurance policy may not specifically mention computer viruses, there is a good chance that it will cover the insurance industry is that it corporation's data or even har ware is destroyed or damaged I a virus, they will be covered said John Lamberson, a softwa industry specialist at Corroso Black Corp. an insurance by

is a merage rame, in a recent speech.

is a manages caused by a virus
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ports about versees has alarmed insurance providers, but after careful reflection, "they have concluded that viruses do not pose an unacceptable risk," Lamberson noted, "Damage from a virus is not unlike the damage that would result from

> i." A handful of insurance como

nies offer or plan to offer policies specifically aimed at protecting computer users against virus attacks, but Lamberson said he doubts that it will become an in-

"I think we'll see instead a heck of a lot more attention paid by insurance companies to the basic security procedures taken by the insured," Lamberson said.

Specs for X.400 link announced

BY ELISABETH HORWITT

SANTA CLARA, Calif. — The X.400 Application Programming Interface Association expects to announce specifications June 20 that will allow different vendors systems to use the same server to communicate with other X.400 systems.

X. 400 yearces.

X. 400 yearces.

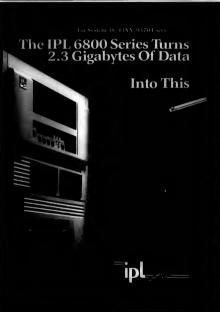
A consistent of the company of the control of t

inge center," and ATI cochairman David Knight of Retix.

The gateway will "significantly reduce the complexity of tying to gether LAN mail systems," York said, "We have bunch of LAN mail systems and would like to use fewer than one server per brand." The API group's release is "one more scick in the will of the reality of K 400." he added.

develop an API to allow any use ware application — not just I mail systems — to access X.40 functions transparently, Knigh said, "so you can sit at year Le tus spreadsheet, hit a key, so up a mean with a directory an each it to another office or city." The API group include AT&T, British Telecom, Digit Registers Corp. Dishorate for the property of the property of

Equipment Corp., Dislcom, I. Lotus Development Corp., S Switch, Inc., Sun Microsyste Inc., 3Com Corp. and Nov Inc. affiliate Indexys.



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Reflex 2.0 frees DBMS space

BY JEAN'S, BOZMAN

SCOTTS VALLEY, Cald. — Borland International is replacing its 4-year-old Reflex fist-fit database management purious 2.0, executives from the software firm and last week.

The product, which removes current restrictions on database size by using a personal computer's hard-disk memory, was demonstrated at the Boston

Boston last week.

Borland's strategy is to enhance rather than abundon the widely installed Reflex, said Kenneth C. Einstein, director of Borland's applications strategy. He said several hundred thousand copies have been sold worldwide

but did not give an exact number. sales imm

The new version is intended for use on PC-DOS-based IBM personal computers such as IBM Personal Computer XTs, ATs and Personal System(2a, Features supported in Reflex 2.0 include interactive cross-tabs, high-quality graphics, multiple views and hot-linked windows. Bortland datas to discontinues

sales of the older Reflex version immediately and charge a \$7: upgrade fee to current Reflex us ers. The firm will charge a one time fee of \$249 for a single Re flex 2.0 license, which is \$10. more than the previous version' price tag. Users may, however copy the Reflex code for person at use at home and the office Finatein said.

al use at home and the office, Einstein said. In faster than Beflex 1.1, Borland claimed, becase of a revamping of its underlying records management structure. Reflex 1.1, introduced in 1986, had an upper limit of 30,000 records and required of the control of the control of the PC-DOS 2.0. Now, Reflex 2.0 uses 512R bytes of memory and a 20M-byte hard disk to support as many as 65,000 records in a single file. Users can now baid DBBRS up to 32M bytes. Bor-DBBRS up to 32M bytes. Bor-

3-00. You at a memory used as the second of the second of

Bush hints at tech sales to Eastern Bloc

BY NELL MARGOLIS

WASHINGTON, D.C. — The door to U.S. computer industry exports to East Bloc nations which slammed shut after the Soviet Union invaded Afghanistan in 1980, inched open last week when President Bush said the administration will consider making exceptions to the ban or accommodate heart of the property of

Spokesmen from IBM and Digital Equipment Corp. were quick to caution that the president's proposal is likely to have: minimal effect on each firm's sales, at least in the short term. "We do only a very modes."

"We do only a very mon business in the U.S.S.R.," IBM spokesman said. Moreor he said, the proposal, still in infant stages, is likely to an only to low-level technology.

James Gallatin, an intermitional trade attorney at law fir Gaston & Snow, and high-enhardwaire and technology will artategic military potential wstay on the restricted list. However, he noted, that still leave wast territory to be explored b U.S. computer manufacturers. "Modems, printers, hard din

drives, LANs, WANs, Ethern boards — very advanced? N Very big? Yes," Gallatin said.



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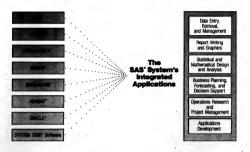
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An educational smorgas-board

Chicago Board of Education draws IS managers' attention coast-to-coast

Editor's note: This is one in a series of profiles of neurinness for the Compare world Senithmonian tank and one of organisations that day not be the compare with these activities designed in the compare of the presental in e correspony half have 20 in Neur in garage.

BY HELEN PIKE



recussment chain in Illinois after McDonaffer, not one of the state's biggest trucking floets, often a limit chain of the state's biggest trucking floets, and the state is supported by the state of th rs ago to become the assis-superintendent in charge of

peeds vis-a-vis its students.

Davis, a onetime IBM sys-ems engineer with a master's legree in business administra-ion, and three high school chers-turned-programmers we created a system that is rehave created a system that is re-ducing trusncy, giving teachers-more classroom time and boost-ing test scores for 425,000 still deats in kindorgarten through 12th grade in a district com-posed of minority children from low-income families.

Not just any school system Vendors come in here all the time thinking we're just a school system they can sell a simple software package to. I tell them they have to think of us as a cor-poration," Cox said.

Cox has told that to the Box of Education as well, with dra-matic results so far. To date, the board has given m more than \$25 million to create a modern on-line system from one that existed on mag

cards; a system whose IS per-sonnel now work on new applicans instead of merely running twoded programs; and a sys-m that can instantly transmit a student's complete record from any one of 600 schools when it d to take as much as three onths to transfer what was ofn an incomplete paper file.

Along the way, the country's ird largest school system has swn, the attention of academia's IS managers from Los An-geles and New York — the na-tion's first and second largest

school districts, respectively — and from as far away as Puerto Rico and Singapore. They come to look at the school's electronic

This means I can teach a whole other chapter of math and etimes more," explained school teacher Ofelia So-

Another example of the at-

key in her students' grades in about 20 minutes. Previously, teachers entered grades by hand, taking an entire day to do so — a day in which students did



Chicago educators at the Help desk area

dialer, which calls the homes of students who are absent without a legitimate excuse.

The function is part of a one two punch, supplementing teachers' calls to parents. It works from data that teachers enter during the day on the sta-tus of students who do not make

At one high school, 88% of the student body now shows up for classes, nearly a 2% improvement over last year.

electronic report card applica-tion that, in one instance, allows a teacher with 125 students to

tention Cox'a Comprehensive Student Information System is drawing in academic administra-tion circles is an electroxic stu-dent record system. When fully implemented, these electroxic files will chart students' pro-gress — their grades, atten-dance, special needs, medical history transportation, needs and awards — from when they enter kindergarten to when they graduate from high school. Cox characterized the syst

"for teachers, by teachers."
One teacher is former his school math and computer pro-eramoring instructor Laura

Spitzbarth, who switched cateaching. It gave her a huge ad-vantage in being able to design in vantage in being able to design in a fourth-generation language, for example, a 12-computer sys-tem that handles scheduling for both teachers and students. Modernizing the system was done out of sheer necessity be-

cause "we were all getting writ er's cramp from doing the pro-grams by hand. And we wanted to eliminate redundancy," she said, adding that high schools with more than 600 students need access to a computer for programming enrollment and acheruling.

For the record in Cox's centrally designed sys-tem, student records are maintem, student records are main-tained on a Uninya Corp. 1100/94 mainframe while the district's finances are handled by an IBM 3033 mainframe. Data is downloaded to IBM Personal Computer compatibles at indi-vidual schools. The district oper-ates a private digital network based on lessed lines from Illibased on leased lines from Illi-nois Bell. Cox's annual budget is \$17 million, with \$12 million go-ing to hardware operating costs and \$5 million to personnel. "After you've gathered years

namer you've gathered years of data, you have a tool for the teachers to help develop the students," said Cox, who in-stituted monthly computerized reports to track the district's

With up-to-date statistics at his fingertips, Cox continues to implement a vision for improving Chicago's public schools that is based on computer technology
— a vision without which, Con

the White House, according to ing American companies to pay tariff-inflated prices for certain ashington sources. On April 28, in a separate acon, the U.S. Trade Represenniconductor equipment." Novce referred to the icss

of sanctions on dynamic rando access memory computer chi which were imposed by the U.S. after it was proved the Japanese had been dumping the chips, or selling them below production

The retaliatory action by the "The retalistory action by the United States came after Japan had already achieved domi-nance," allowing the Japanese to use their monopoly power "establish on export cartle at the expense of the U.S. semiconduc-

ight-point plan, including ated tariff beginning at 6% and increasing 2% per month un-til there is a balance of trade for telecommunications prod between Japan and the U.S.

In addition, Noyce called for tost of the collected tariffs to be sed to aid the U.S. telecom-numications industry and to sup-ort high-definition television wearsh and development.

Bush: Japan hampering supercomputer sales

BY ELLIS BOOKER

e Bush administration last ek accused Japan of unfair de practices, snying it uses uctural obstacles to insuper S. supercomputer manufac-ers from doing business in its

The citation, compiled under the no-called Super 301 provi-nions of the 1988 Trade Act, is the second najor trading viola-tion charge against Japan by the administration in an many months. It could result in trade sanctions against the U.S. larg-

based Cray Research, Inc. as-ted last week that his compa-has had years of difficulty

particularly the government-metrolled public sector.

Cray, which claims an 80% arket share of the worldwide spercomputer market, said it in only a 15% market share in pan, 23% of which is repre-sented by sales to the commer-al market. Conspicuously, we'ver, the company said it has by a 3% share of the public sec-

Cray has complained to the Japanese for several years about such unfair procurement prac-tices as late notification of reaests for proposals (RFP). The empany also complained that gamese RFPs often contain a uirement for instruction-set rather than functional — spatibility with existing, typi-

ly Japanese, computers. This requirement, Cray said,

percomputer bids.

However, neither Cray nor
Control Data Corp., which folded its supercomputer operation is April, were among the 39 com-panies and industry associations that submitted public comments to the Office of the U.S. Trade Representative for its Super 301

If we find that the country is not willing to negotiate or make progress, then one option avail-able to us is retaliste by raising tariffs or other fees on goods and tariffs or other fees on goods services from that country," plained a U.S. trade official.

This retaliation, which is not currently planned, would likely with high-technology eds but would not be limited to

goods but would not be immed to these products, she said. The Bush administration also charged that Japon has a govern-ment policy explicitly protecting domestic satellite providers and maintains unfair turiffs against imported humber. Brasil and In-

dia were the two other nation on the Super 301 list. But Japan which list year had a \$55.4 bil-lion trade imbalance with the

tative charged Japan with violat-ing the 1986 Market-Oriented, Sector Selective Agreement on Telecommunications, or MOSS Agreement, which calls on both

countries to maintain fair and open access to each other's tele-

Committee of the Commit

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DIVERNITION. IT IS WRITTEN IN CARD integrates seamlessly with MVS/MA, MVS and VM operating systems; with CLCS, TSO, IMS/DC and CMS teleprocessing systems; and with DB2, IMS, VSAM and other database management systems.

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FDITORIAL

Filling holes

HILE IN EUROPE last week, President Bush spoke eloquently of the need to tear down the continent's walls and barbed wire separating

But it may not be the words of George Bush or Margaret Thatcher or Mikhail Gorbachev that have the most profound impact on rebridging the craters left behind by World War II. This role will largely fall to a force that is inherently apolitical:

computer and communications technology.

Indeed, technology is the linchpin that will bind Europe into a single economic community beginning in January 1993 (see story page 1). The prudent deployment of computer and communications technology will determine just how competitive U.S. companies will be in what will shape up as a booming united Europe.

Already, several U.S. multinational firms are

laving the groundwork both to exploit the opportunities of a united Europe and to protect against supercharged European companies laying simi-

There is also a golden opportunity (if not a mandate) for U.S. multinationals to unify their IS operations at home and abroad and then expand this unification to include all global operations.

As our story points out, there are no magic formulas or universal panaceas to prepare us for the European consolidation. But certainly there is no time like the present for prepping for tomorrow, especially when certain elements of the future are in such clear focus today.

Moving ahead

s a player in the information and communications business, AT&T has certainly taken its lumps, particularly since 1984's court-ordered divestiture. Despite its enormous resources, AT&T was widely seen as being light-years behind competitors that, unlike AT&T, did not grow up as regulated monopolies. It was said that the firm did not understand modern marketing, its work force was monopoly-bloated and its management was inextricably shackled to the old days and old ways.

Now it seems that "Telephone" (as AT&T was known in the olden days) is showing a different face. That face was really shining last month when AT&T and its largest union negotiated one of the most progressive labor agreements seen in some time. Provisions of the agreement strike right at the heart of the most pressing problems facing U.S. business today, including the impact of rapidly changing demographics and a shrinking labor force.

Specifically, the agreement provides for sweeping benefits for child and dependent care. Moreover, AT&T will voluntarily extend these benefits to non-union managerial employees.

In this case at least, AT&T is way ahead of the pack. The old dog has learned some new tricks. You have to wonder what else might be in store.



LETTERS TO THE EDITOR

fession that is not run by the professionals themselves. Let's get computer professionals manag-

ing their own profession so thes

can use their vast experience to

make the informed decisions

The Fund explains

We are concerned about min

terpretations that can be drawn

from "Title search service puts

These two sources of income are

interdependent, and The Fund

Marketing and advertising has been a business tool since the inception of The Fund. There

was no new management team that entered The Fund in 1982.

Over the past five years, two or three individuals who joined The

Fund happened to have banking backgrounds, but this had no

bearing on the issue of market-ing or management directions.

does not view them as separate.

Green Village, N.J.

1980s and '90s.

Cry of the clone

Regarding your editorial "A puzzling game" [CW, April 17], I think that most of the editorial is right on However, I don't think its conclusion was accurate. The key to the executive suite is probably more than a generation away because these CEOs are or the part recognition They may not be good at using information technology, but

they're super at cloning. In economically tough times like these, cloning thrives. There are always a few excentions to point to but not enough tion technologists are not known for their courage. Nevertheless,

keep crying in the wilderness. Sigmund I. Bienkowski Manager AT&T Data Systems Group Morristown, N.J

Techies unite

preferred" [CW, March 20] said the industry needs Wizards, Ma-picians and Witch Doctors. What we need first is to rid management of Charletans, Soothsayers and Fortune-Tellers - those nontechnical managers who make technical decisions using crystal balls and tarot cards. Next, we should get rid of all of those hackneyed, worn-out phrases and other put-downs used by nontechnical managers

miss the superior capabilities of the technologist.
"The way to the executive " ICW, May 8) lacks focus

when it says technical people can't manage computer technol-ogy. I say the industry and the technologists have both come a long way. We're not talking out hard-working computer nicions sometimes disperso

ingly referred to as "techies" but the professional, business-oriented technologists of the torneys for attorneys. The only reason for our existence is to service the attorney. They are 'dependent on us" only as long I don't know of another orn-

as we serve them well. Your article leaves an impres ion of naivete and management ineptitude, which is not the case Confusing the background of a few individuals with a company management change is simply

not called for Charles J. Kovalesk President Turner Coad Senior Vice-President

Attorney's Title Insurance Fund, Inc.

Reslicing the pie

attorneys on-line" [CW, April Your Trends article on minisu-percomputers (CW, Feb. 13) contained a misleading pie chart. The chart, attributed to In-ternational Data Corp., shows the minisuper market at \$206.5 The transformation of our business with information tech-nology was always intended. We did not sneak into the informathe minisuper market at \$206.5 million for 1988 and shows FPS tion business; we recognized that providing title information Computing with a 6.1% market share, implying \$12.6 million in to the attorney was critical to the underwriting business of The Fund and the attorney. ue. In fact, our calendar We have always monitored 1988 minisuper revenue was ap-proximately \$24.5 million, or our revenue sources. It was in-teresting that you noted that for 11.9% of the total show. The increase in FPS' percentage, of the first time in 1982, revenue course, means that the numbers seed that of title insurance. shown for our competitors are

erroneously high. Jeff Wilson Public Relations Manager FPS Computing

Computerworld melcomes com-ments from its readers. Letters may be edited for brevity and clarity and should be addressed to Bill Laberis, Editor, Computerworld, P.O. Box 9171, 375 Co

Local IS groups: Boon or bore?

ROBERT HARGROVE



newsletter announcing the oming monthly meeting of my local information systems or-

Whether aimed at trainers. personal computer enthusiasts, system managers or security specialists, these announceannounce ments have a way of seeking me out no matter how I try to sucid

Upon receiving these nagging missives, all the reasons for not going begin their old refrain: . I haven't got the time. Because having the time would concede that I had nothing to do at that particular time, it's an admission that might negate my pleas for more resources because I am so

• I'm not a joiner. I like my com outer and maybe two other peo-. I don't like blue meat or making conversation with people while trying to figure out the proper eating utensil or cutting through a roll that should have

Hargiove is security and co planner at the University of Texas

he ago They might make me do some thing like talk or serve on a panel ormake a presentation. The last time I raised my hand at one of these meetings I ended up as re-

cording secretary. • I don't want to drive acros town to find out that the presen-tation is just a modified sales

The ambience of out-of-focus sparencies or on-line demos that are doomed to fail ("Gee. I don't know what happened. The phone lines must be down in Ak-

ron") is not my cup of tes.

Eventually, fighting my own inertia, I relent — only to discover that my experience is much less borrible than thought it would be. It helps if you view these meetings not as monthly out-of-the-office jun-kets, but rather as working labs where, with a little digging, one can extract some real nuggets of

These meetings can pro an excellent opportunity to con duct a little real-life resear about what's working and what's not. The experiences of your col leagues can prove invaluable, and, in an informal setting, chances are that the appraisal you receive will be much more open and easy to evaluate than

the information you might re-ceive at a vendor's lunch. and a good place to try out your

give you not only a sense of the state of your own local job mar ket (always a handy piece of in-formation), but also a larger view of your profession and where it is soing. Many times these meetgs can function as one part inmation and one part group rapy, as common expe

and attitudes can prove that you are not alone. ("Your project took how long, at what cost Homework assignment Also, if vendors are present, put them to work. One should be

aware, of course, that vendors have the same objectivity as lob-byists, but like lobbyists, they can provide a great deal of infor mation on almost any subject re-lated to their area. This ground work can act as one factor in your decision-making process.
You also might find individ-uals who are willing to tell you what didn't work in their envinent. They may give you a true picture of the resources and training needed to support a par-ticular product or maybe even a

stration of a product that you're interested in.

Even if you should be roped into serving on a panel or, heaven forfend making a presentation, don't despair. These organizations are a safe place to fail

act before presenting it to your

The price is usually right, as most of these organizations charge just a nominal fee to cov-er expenses. This is money that can be thought of as training dollars, always a notonously scarce

If you already are an officer of one of these organizations and are struggling to increase mem-bership participation, try giving your members something to take back with them from the meeting. It needn't be a door nrise. Give them some bit of

knowledge or information they can apply to their day-to-day existence, a security technique, or a little-known technical tip about a commonly used system.

a commonly used system.

Tune is the most valuable
set that most of your memb
have, so let them take someth
valuable back to work with th
— something for themsel
and something to justify their
tendance for their bosses. If the potential membership still hesitant, let them know th

Up and down trends in systems integration

A trend can be

EFREM G. MALI ACH

interesting. Two converging trends are more meaning The first trend is the growth

The first tread is the growth of systems integration firms. While experts disagree on how many billions of dollars such firms will take in this year — pri-marily because they disagree on just who is a systems integrator — they agree that the total sum

is big and is getting bigger.

The second, seemingly unre-lated trend is the move toward wneizing. Local networks of PCs deal with many information systems insues at a lower cost than mainframes — and more ef-fectively for their users. The profit picture for vendors

allach is a faculty number at the Uni-raty of Lowell in Massachusetts and a

that depend on the mainframe market for business is far from rosy. While nobody predicts the total demote of mainframes in six months or even six years, the set of problems which they solve

st is shrinking.

When we look at these two
ends together, we notice
mething strange and surprisng: systems integration fr ite the handwriting on the

continue to con shelmingly on mainframe one reasons for this are ob vious. Customers of big system

integration organisations tend to be big user organisations. The mainframe will survive longer in megafirms and government else. If large systems integrators can meet their goals by develop-ing mainframe systems for such users and, more dubiously, if they will be able to do no for the indefinite future, such a strategy

lso, a key con

and should be, keeping up the bil-lable hours of technical staff. If they can do this most easily by finding MVS Cobol systems that integrate, that is what they should look for. A third reason for the mai

une focus is good old corporate ertia. General Motors Chairman Roger Smith personified this in 1987 when be declared et "the best \$7,000 car for the serican buyer la a 2-year-old

HE PROFIT picture for vendors that depend on the mainframe market for business is far from

plains why GM lost 20% of the U.S. car market. Companies that share GM's attitude may be

Some systems integrators are reacting to this situation. For example, Arthur Andersen Consulting, the systems integration arm of Big Eight firm Arthur An-fersen & Co., recently went to est lengths to teach its staff out expert systems. However, in its own phrase, the teach was an inch deep. Years of me mpractical to give its staff of usands more than this. Keal tificial intelligence use reli on a central team with deeper

If this was the best systems integrators could do for a new megnetors come no for a few application area, imagine what it would take to get their local staffs to implement a 3Com net-work that integrates Macintosh Hypercard, Oracle with SQL and C under OS/2 with Presents Manager, and a TCP/IP gateway to a Sequent Computer Systems

count systems unegrators try to cope with obvious deficiencies via strategic alliances with spe-cialists. Such matchups are fine in specialized areas. Nobody ex-pects a major systems integrator oects a major systems integration to be an expert on factory floor sustomation. However, in dealing with a basic technology such as ocal-area networks, strategic alnces are not the answer. The liance simply papers over a roblem and lets a systems inte-

problem and lets a system inte-grator provide some sort of solu-tion. By making it unnecessary for a systems integration firm a staff to learn new technologi erpetuates its own main-e culture and inhibits the from learning enough about

better solution. It also ties its customers to the vendor with which the alliance was made, even if competitors have better

solutions. Now put these trends and facts together. Systems integra-tion is booming, users want mi-cro-based solutions, and systems integrators aren't positioned to satisfy them. What happens? Simply the following occurs: The next big success story is likely to be a systems integrator that starts fresh with a different focus. This firm will know that

eking out users who want the impetitive edge that such sys-ms can provide and maintain a commitment to keeping its staff at the leading edge of technol-

traditional systems integra-skills in project management a ill not pretend that registry on't exist — but it will us er end of that commun

lalocali Icaliali Icaliali Icaliali Icaliali Icalicali (2000) Conicia conicii Icalicali (2000) 0100000 | 1000000 | 11000000 | 11000000 | 11000000 | 11000000 | 11000000 | 11000000 | 11000000 | 11000000 IIIOODO IIOOO IIOOO IIOOOO IIOOOO IIOOOO IIIOOO IIIOOO IIIOOO IIIOOO IIIOOO HOLOGIA GOLOGIA GOLOGI leaccell located official allocall leaccell goodell goodell leaccell according allocated CHORDOOD IIIONOO II/OIOID IIIOOIOO CICCOCOO IIOIOOO IIOOOOII IIOOOIII 01000000 DIOCOCII III DOI DIOCOCII DOI DIOCOCII DOCOCII DOCOCII DOCOCII DOCOCII II DOCOCII II DOCOCII DOCOCII DOCOCII DOCOCII DOCOCII II DOCOCII DOCOCI leaded the collicion is a second character of the collicion in the collici 1100011 1100011 100011 1000001 1010101 1000001 1100011 1100011 1100011 0100011 100001 0101011 0100001 1000000 1100010 1100010 1000011 100001 0100011 0101011 0101011 00000011 00000011 10100011 10100011 0000101 TOLOGOII IIIGIGIII IIIGGIII OOGOOOLO OILOGOII QOOOOGII IIIGIGIII IIIGIGIII IIIGIGIII IIIGIGIII IIIGIGIII The coll indical masses in the coll collection in the collection i 1010011 01101011 10000011 11000011 11000011 11000111 1000011 1000011 1000101 MICOOR PIOLOGO GIOCOCO HICIORO HICIORO HILLONDO HILLIO HICORO HICORDI DIOCOCOCO MODEL HORSE HOLDER OF SOCIETY OF 101001 0000001 1010101 100010 000000 11110000 1111000010 11001011 1000010 0/00/10/11 0/00/11 10000011 00000000 00/00/011 10/00/011 00000011 00000011 10/00/011 DIOGRAPO II/OPII II/OPII II/OPII DIOGRAPO III/OPII II/OPII II/OPII II/OPII II/OPII IIOOOH 1000000 1000001 IIOOOH 11000001 IIOOOOH 1000000 1000000 IIIOOOH 1101011 0000001 0101011 11000011 1000011 1000011 1101011 01000011 1001011

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SYSTEMS & SOFTWARE

SOFT TALK

Stanley Gibson

Can you spell 'keyboard?'



even or eight years ago, we sonal computers were new. and ordinary people needed help finding their way with them. Come to think of it, Apple's Macintosh came along at just about the right time for many people who were starting out with PCs. Now, however, it's much

The work force has been trained, cajoled and forced into using computers. Many were trained at a considerable expense. But that money has been

spent - it's water under the and give him an easy-to-use interface that costs twice as

much as the one he had is a po less exercise unless he is being given a radically new application to deal with — one to which his previous training is not transfer-

Though it seems clear that an easy-to-use interface — one with which a user needs famil-iarize himself only once — will Continued on page 27

Pioneer Codd revamps model

ANALYSIS BY AMY CORTESE

Just when you thought software vendors were finally getting a handle on relational technology, a new model waits in the wings for an autumn debut. Edwar F. Codd, the creator of

Edgar F. Codd, the creator of the relational model of database management and chief scientist at The Relational Institute, has drafted Version 2 of the famous relational model that shaped da-tabase technology. The new version, RMV2.

The new version, now op-brings into a single model ideas published by Codd in various pa-pers since 1979. While it builds on the original model publish in 1969, RMV2 includes refi ments as well as new design prin

ciples that extend the capability of today's relational systems, ac-At a recent presentation to se Washington, D.C., chapter of

the Association for Computing Machinery, Codd said the new

biunders."
While the widely cited 12-rule acid test for relational compliance laid out by Codd (CW, Oct. 14, 1985) still holds, the RMV2 has been expanded to include has been expanded to include 333 features considered impor-tant by Codd, up from a mere 50 features in the original model. This is certain to cause data-

base management systems ven-dors to groan because, according some will start to be im ed," said Robert B. St

their products. He contends that even the DBMSs that come the closest --- IBM's DB2 and Tanem Computer, Inc.'s Nonsti OL — are only 50% complian ing to venture an opinion on the new model until they were more

new model until they were more familiar with it.

The new features, grouped into 18 classes, deal with a range of structural and semantic issues including entended data types, database administration and the systematic handling of missing

At the public presentation of RMV2, attendees took a korn, albeit academic, interest in the new model. "I don't think you'll ever see all 333 features, but economic analyst at Matre Corp.
Guy Roullier, a senior systems engineer at the Computer
Tash Group, concurred, noting,
"The commercial world needs to
get their work done, and that has
to take precedence over theoretical purity."

But users who were at the

ntation were excited about oin operation. "Users will start nammering on vendors for fea-tures," predicted a consultant ed at a major relational

Gressing the financial wheels at Sacford C. Bernstein. Page 25.
 Motel chain gives thumbs up to Unisys 2200/400.
Page 25.
 Oracle amounces CASE Generator. Page 27.

Data View Splitting up the mini market



Tandem wins bid for state vehicle database

BY J. A. SAVAGE

SACRAMENTO, Calif. - The largest vehicle information orga-nization in the world, the California Department of Motor Vehi-cles (DMV), will update its 20ces (1944), will upcare its 20-year-old computer systems to employ a relational database en-gineered by Tandem Comput-ers, Inc. Tandem won the \$5 mil-lion development contract after a benchmark competition in which it heat IBM on hardware

costs and transaction perfor

mance.
While Tandem's 28-proces-sor VLX with Nonstop SQL best IBM's 3090 Model 400S mainame and DB/2 relational data base in a \$1 million benchmark test conducted by the state, Tan-dem's 70 transaction/sec. for the state's configuration was no where near the company's to claim in its own benchm which was 208 transaction/



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YES NO NO NO YES NO NO YES NO NO YES NO NO NO YES NO NO NO YES NO NO

YES YES YES YES NO YES YES

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Major Cooperative Processing Software Products: Functions: operative Processing Topologies Supported Server(Requester Processing Topological Con-PC-based Front-end To Existing Programs SAA/CUA Forms-end Greated Without It Feer-To-Peer Communications Distributed Database C Developer's Toolkit YES NO NO NO NO YES YES YES NO NO NO NO NO NO YES | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 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Grist for the investment mill

BY JAMES DALY

NEW YORK — For those of us who have trouble balancing a eckbook, consider George id's mind-rattling task. As distein & Co. research and invest-ment house. Reid oversees a computer setup that keeps tabs on the financial particulars of 5,000 customer accounts worth more than \$13 billion. To that end, Reid must use

the sharpest technological blade available to carve through the fi-nancial data that arrives continold Varietation 3100

"From a raw CPU power per-spective, it's just what we're looking for," said Reid, who plans to equip all of the compa-

The 25 Vaxetation 3100s in-stalled so far were added to an environment that included net-worked Vaxetation 2000 work-

General Corp. breathed new life into its midrange line late last moeth with the introduction of less expensive models that it will

er as preconfigured systems. The Eclipse MV/15000S series, made up of three models with different memory and storage configurations, was designed to here new customers, accord-ing to John Morrell, product manager. It is positioned as an

wheels in the company a portion in management service, which perform the gentle art of harding someone's money as if it were its own. Historically, the task of money management had been consigned to the trust department of a nearby bank, but during the past 10 years, specially firms have arisen that will play the market, buy bonds and invest—his for those who have neither cash for those who have neither the time nor the inclination to do

Sanford C. Be

At Sanford C. Bernstein, the 3100s are primarily in the hands of portfolio managers who rely on sophisticated computer mod-els running on an IBM 4381 to chart a daily investment course that is tablead to each postfolio. that is tailored to each portfo The model consolidates ny of assorted financial informa on, couples that with the indi

The new machi nes will be

extension of the MV/15000 se-ries, which DG will continue

rent customers.

DG cut the starting price of
the S series to below \$100,000,
while the 15000 series will continue to sell above that mark.
For example, a 15000S starts at
\$90,700, whereas a 15000 with
the equivalent amount of main

one rapid manner.

On a typical day, stock and
one market information is comiete and ready to be entered
at the 483 in the wee hours of
the morning. By 6 a.m., that is
romation has been transferred
at a VAX database environnent running Sybase, Inc. 's Syose. The 3100s continually tap
at the database to are of it has
to the database to are of it has

ipring into action By 7:30 a.m. each business day, the 3100s have updated all the cortfolios, which will then spring nto action when the bell on the New York Stock Exchange rings

Still, it was not always this sy. "On some had mornings, a may creep toward 9 or 9:30.

Morrell said DG expects the 5000 to appeal to some existing ustomers who want to upgrade ut do not want the disk and tape

Unisys 2200/400 units check 'inn' at La Quinta

BY ROSEMARY HAMILTON

p. may not have come ough on time for La Quinta ore lines, loc., but the organi-on and its new 2200/400 nframe are now receiving

nounced a one-quarter delay in sipping the new mainframes.

For La Quinta, the new ship-ment schedule put off a badly needed upgrade. But the compa-ry decided to hang in there will Unisys and not change plans be-cause it was assured that the new schedule would still bring the mainframe in before La Quinta's businest senson — the

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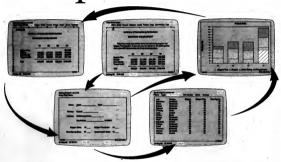


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numerical, textual, and graphical-is based on the same data source So. your users never have to cut and paste information or type in a formula to create a link, as in other integrated programs.

Second, Symphony's macros and sophisticated command language let you develop custom, turn-

than if you'd developed equivalent applications with a high-level programming language. That way, your users don't have to know how the program works, only how to perform the applications you've developed.

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directly from within Symphony. To take advantage of this offer, call vour Lotus Authorized Reseller today. And get your users working in a few new directions.



key applications for your users. In less time

Grist

and you've got a prob

open, and you've got a problem because the decision process be-comes rushed," Reid said.

Often those had mornings were the byproduct of the slow-er Vaxstation 2000s, which Reid is glad to see shuffle down the corporate ladder. corporate ladder. "The 3100s have broken a lot of the boundaries the Vaxstation 2000 had," Reid said. "The main memory is a lot better, the

oughput is much greater, and we gotten rid of the RD53

Gibson FROM PAGE 23

save training money over the long run. But, at this point, that training money is only going to be spent on new employees or

new applications.

Is this to argue that old-fash-ioned character-based user in-terfaces are better? No, not ally, but there may be mes when they are. For many users who have become accus-tomed to a certain kind of screen and instructions, movin to a user-friendly interface may he a luming that can be postdisk, which is terrible for perfor-

mance purposes."

Those advantages moved to the fore recently when Hewlett-Packard Co. announced it was purchasing Apollo Computer, Inc. Sanford C. Bernstein portfo-

their computers, and the an-swers for all accounts were de-veloped within 90 minutes. "It's comforting that when there's an opportunity for ac-tion, you're less than two hours

s is not a good idea. imes text is better. To put Sometimes text is better. To put it another way: If pictograms were so good, why was the alphabet invested! If looking at a picture and pointing to it is all we need to do, then a 1-year-old child is equipped for life and does not need to learn how to read

and write.

Of course, pictures have
their place. Even dictionaries
have illustrations for words
where it would be extremely difficult to offer a verbal explanation. But character-based alpha-

namel. Only recently were in-riace boards made available at will run Ethernet. Up until

bets have brougen to make the long way.

There are going to be times when some up-frost training as going to save time in the long run. Yes, you do have to take the trouble to learn which function.

the right ones, you can lift several keys in the time it takes to move a mouse to one icon.

User companies ought not regard the iconic interface as a capital empense that translates immediately into happier, more

Oracle adds application generator to CASE line

BY STANLEY GIBSON

componential compo

ing SQL Forms, which is an Ora-cle fourth-generation language (4GL) development tool.

Alex Mollem, Oracle's CASE product manager, said support for other 4GLs will be added in the future. He added that CASE Generator does not yet work with Oracle's SQL Report Writ-er but said that support will

or but said that hoppon come later. Currently in beta testing, CASE Generator will be avail-able in MS-DOS, Digital Equip-ment Corp.'s VMS and Sun Mi-ment corp.'s VMS and Sun Mi-

Molen outlined Oracle's re

tor the information Resource Di-rectory Standard.

Mollen said that Oracle will make sure that all components in IBM's repository will be offered in CASE Dictionary, However, in CASE Dictionary. However, some objects in Oracle's dictionary will not be in IBM's repository. IBM's repository. IBM's repository, although much discussed, has yet to be formelly assessed.

ment oscussed, has yet to be formally announced.

Mollen also said Oracle's dictionary will minic DEC's Common Data Dictionary (CDD) Plus.

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Aries, Data General sign joint marketing pact

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wiett-Packard Co. and Interieaf, recently announced that interieaf in-ds to port and resell its technical out-

interleaf said it will begin shipping its Technical Publishing Software for HP 9000 Series 300 workstations in the fall. At that time, interleaf will become an Hi

Cognos, Inc. in Ottawa said it signed its first European reseller agreement with Waterland International in Amster-dam, a supplier of manufacturing soft-

Waterland agreed to resell Quiz, Cognos' report generator, with Waterland's manufacturing software. Waterland also

Software 2000, Inc. in Hyannis, Mass., a developer of business manage-ment software for IBM's Application System/400 departmental system, said it signed a training agreement with Coo-pers & Lybrand.

The accounting firm's consultants will trained and certified by Software 2000 the vendor's applications software. hen trained, the consultants can help clients using Software 2000's applica-tions to plan their information systems. Software 2000 said

pase, Inc. in Emeryville, Calif., and taease International, Inc. recently nounced a joint marketing agrees at will enable customers to build Sw SQL Server applications with Data

database software products.

Under the agreement, Dataesse with the agreement of its Dataesse develop a new version of its Dataesse develop a new develop a new version of its Dataesse da-tabase that incorporates SQL support. The new database is intended to transpar-ently translate full Dataesse functionality, including table creation and native lan-guage queries and subspecies into SQL before going to the Sybase SQL Server

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EXECUTIVE SOFTWARE

NEW DEALS Army signs on Active's DAP 610

Active Memory Technology, Inc. said it shipped one of its paral-lel computers, the DAP 610, to the lei computers, the DAP 610, to the U.S. Army engineers in Vicksburg, Miss. The system, which costs \$360,000, will be used to process airborne scanner imagery for mine field detection.

Valley Bank of Nevada plans to buy two Uninya Corp. A series main-frames and the Unisya Global Fi-nancial System for \$6.4 million.

while, the Central Library in Lancaster, O

tas Airways Ltd. in Sydney, ralis, purchased a \$400,000 n from Context, a division of enter Graphics Co. The system, sich consists of six Context work

led a mini-supercomputer at titute of High Energy Phys-titute of High Energy Insti-

Tandem PROM PACE 22

constructed to address the de-partment's special needs, including constant uptime, at least 30

mg constant uptime, at least 30 complex transaction/sec. and a database with 12 tables in sizes ranging from one million to more than 80 million rows each.

In Tandem's original debit/ In Tandem's original debit/ credit benchmark, each transac-tion required five different types of SQL statements. In the Cal-fornia DMV benchmark, it re-quired an average of 11.3 SQL statements, according to Praful Shah, Tandem marketing man-ager. Additionally, the database

ager. Additionally, the database in the original benchmark had 3G bytes of information, and the DMV required close to 80G bytes, he said, IBM officials were unavailable for comment. IBM passed two of seven per-formance tests; Tandem passed six. "IBM was unable to demonstrate acceptable performance levels needed to meet DMV's

processing requirements," ac-cording to the department's nchmark report.
IBM bid hardware costs for the development system at \$23 million. Tandem's cost was \$10

While IBM was found to "be superior" in the number of third-

party tools available for the DB2 environment and was judged better in training because DMV employees were already trained on IBM terminals, editors and utilities, Tandem "demonstrat-

ed a higher degree of performance, availability and opera-tional case of use," according to the benchmark.
"We have 50 million rec-

RM BID hardware, costs for the devela opment system at \$23 million. Tandem's cost was \$10 million.

ords," said Del Pierce, director of the department. The current hardware platform, a Sperry Un-ivac, was customised by RCA Corp., be said: "It runs in a straight line." straight line."
However, when the old system was designed, "we never contemplated having to keep track of parking citations, moring violations and pollution control permits," Pierce said, For

instance, Pierce said be never thought be would get a request for "every 1972 Pinto with the last two letters XY on the

those things "with a lot of time and lot of expense," used Don Leachman, chief of the department's division of data processing. Such information requests must be processed through the

must be processed through the two sequential databases cur-rently at the department, one for vehicles and one for drivers. Many times, the two do not match up, according to Leach-

The relational database project dovetals with another break-through in driver's license technology. By early next year, ceiving credit card like licenses with a digitized signature and photo and a magnetic strip on the back with address, birth date and down has yet been selected to complete the license project, but Perce said that the data wife re-main on the hardware and will be distalous.

It is estimated that the final on was designed, "we never a transported level got leady actions project will cost about a clot of parting citations, more videous and positions and position concernments." Perces said, For any of permats, "Perces said, For any of permans, "Perces said, "Perces said, "Perces said, "Perces said, "Perces said, and sa

PROM PAGE 23

DBMS firm.

Among the significant enhancements in the new model is the notion of updating a view. With today's relational products, only views derived from a single lating or valide, may be updat-

With index's residuous product, where the content of the content of the tills in a content of the tills in an execution, or talks, may be updated. Cold contents that this is an execution of the content of the content

that if it is cut off from communications, it can still operate as a DBMS. Codd foresees the need for a global database administra-tor who knows the content of every database in an organization.

Additionally, Codd expands

Looking ahead, Codd said that future vernions of the relational model will be introduced in 10-year intervals, giving vendors time to sort things out. Version 3, be disclosed, will expand the use of integrity con-

ODD foresees the need for a global database administrator who understands the content of every database in an organization.

straints, so that is addition to preventing something from hap-pening, they could be used in a more general way to trigger an action. For example, an account-ing system could automatically generate a bill after a certain pe riod of time.

"This is how businesses wil

norporate a good part of business extinity in the database world. The database will be a very central thought source,"

Codd said.

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Vord processing that oes beyond just words introduced for OS/2.

IBM has released DisplayWhite 5/7 Composer" This advanced word processing softwere lets you scan photos and line art into your document, post them anywhere on the



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reminder system helps you automate your processing tasks. Front Development Corporat

has started distributing Tickler/2." This advanced automated reminder system lets the user crasts a series of remanders to occur below, during and/or after an event. Tickins/2 can even remind your computer when to perform certain tasks. Because it can be used in contraction with your data base, spreadsheet, E-mail and project management spitware, it gives you amazing versatility. For example, you could set up Tickler/2 to take a previously generated sales forecast spreadsheet, update it daily print a report and electronically mail it to another computer at the end of every week...all while you're on vacation. For more oformation on the advenced case

bines of Tickler/2 call 1 303 286-8686. Symantec's Q&A provides powerful file management for OS/2.

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NEW PRODUCTS -HARDWARE

Data storage

Force Computers, Inc. has intro-duced a combination hard-disk and floppy-disk subsystem said to plug directly into standard Motorola, Inc. VMEbus backel. The device costs \$1,425;

The Mass Storage Module (MSM) incorporates industry-standard drives to provide up to either 42M or 84M bytes of foreither 42M of 84M sytes of for-matted Winchester capacity and 720K bytes of formatted floppy capacity, the vendor said. The MSM-42 is priced at \$1,990, and the MSM-84 costs \$2,490. Force Computers 3165 Winchester Blvd. Campbell, Calif. 95008 408-370-6300

Sigma Information Systems has announced a controller designed to interface as many as seven mall computer systems inter-ice (SCSI) drives to a Digital quipment Corp. Microvax II, Microvax 3000 or LSI-11 Q-bus

Designated the SDC-RQD11-SCSI, the product reportedly in-terfaces SCSI disk drives of any size and data rate to all standard

odification.
Functions include seek opti-ization and overlap seek, as well as a connector that inter-faces drive functions to a front

Sigma 3401 E. La Palma Ave. Anaheim, Calif. 92806 714-630-6553

Processors A multiuser, Unix-based com-puter, capable of serving 132 de-vice ports, has been introduced by Peint 4 Data Corp. Dubbed the Mark 2000. the

bed the Mark 2000, the Dubbed the Mark 2000, the system uses reduced instruction set computing technology and a 64K-byte cache for instructions. Memory is reportedly expandable in 8M-byte increments to

able in 8M-byte increments to 48M bytes.

Packaged in a tower-style cabinet, the basic system in-cludes a 14 million instructions per second CPU, 8M bytes of memory, a 376M-byte small computer systems interface disk drive and an Ethernet controller ive and an Ethernet controller. Pricing starts at \$54.500

with shipments scheduled to be-gin this month. Point 4 15442 Del Amo Ave. Tustin, Calif. 92680 714-259-0777



A fault-tolerant Unix-based workstation has been introduced by Concept Data Resources.

Hyperstation runs on AT&T Unix System V, Release 3. A standard configuration supports 32 users and incorporates 32M

bytes.
It is priced from \$30,000.
Concept Data Resources
8 W. 38th St.
New York, N.Y. 10018
212-302-7663

NEW PRODUCTS -SOFTWARE

System software

On-Line Software Internati Inc. has announced an enh version of its system repair and diagnostic tool for IBM CICS. Stabilize 3.0 is a menu-driven Stabilies 3.0 is a menu-driven program that automatically detects and repairs atorage violations, system abends and loop/writ conditions. The product reportedly offers improved control to operators who may not be familiar with CICS system programming and includes English text descriptions and reportegeneration capabilities.

generation capabilities.

The software is available for IBM MVS, MVS/XA and DOS/VSE, and pricing ranges from \$19,000 to \$44,000 for a permanent license, depending on manent license, depending the operating system. On-Line Software Fort Lee Executive Park 2 Executive Drive Fort Lee, N.J. 07024 800-526-0272

Applications packages

Interactive Software Services,

al management software sys-em is now available to run on 3M Application System/400 ad System/38 platforms: According to the vendor, the

chaning. The complete system is priced at \$45,000, and pricing for individual modules ranges from \$10,000 to \$16,000. Interactive Software Suite 366 4824 N. Scott St. Schiller Park, Ill. 60176 800-288-3550

for Digital Equipment Corp. VAXs was announced by Pied-

vare mouse. sants payable, so able as well as gen nd reporting. Pricing ranges rom \$22,500 to \$33.500. Piedmont Systems P.O. Box 606 Middleton, Mass. 01949 508-774-4223

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One lump

or two?

se. It's always the same story, he fighter being interviewed coats that be in going to win, wen if he happens to be taking a more youthal Marvelous sarvie Hagler or Mike Tyson of is in for a beating. The battle for cooperative rocessing business will be like hampionaship boxing match, concoole's got to lose.

Someone's got to lose. With cooperative processing, a lot of stuff runs on the personal computer, and a lot of stuff runs on some kind of a bost. IBM loves it because it can sell both ends of the pipe. On the PC side, it'll sell you an late! 80.385-based system with 8M to 12M bytes of random-access senses. Of course, that is not ory. Of course, that is not

nearly enough power. You'll also need a PC server, an Appli-cation System/400 or 370 cation System/400 or 370
mainframe to get the job done.
Mainframe software houses,
some of which have been deteriorating rapidly, also love it because it gives users reasons to
Continued on page 38

Letting your PC do the walking US West compresses its far-flung telephone directories onto CD-ROMs

BY DOUGLAS BARNEY DENVER - Most of us either

thumb through a book or swal-low our pride and call directory assistance to get a telephone

pressed it and slapped it onto a 5-in. CD-ROM disk. These disks are just like the ones holding Frank Sinatra's music

West offering is typical of what several telephone companies are doing with directories. The sys-tem has more than 12 million names, with private residences and businesses that cover most of the western U.S. Users must acquire their own computer sys-tem and CD-ROM drives. Locator Phe outsomers are not your typical phone callers. People who pick up this \$5,000-to \$13,000-s-year system are heavy directory assistance users.

by match phone numbers with names on credit card slips.

There is a surprising array of companies that use the system, and Bill Farrell, new product de-welopment manager at US West. High school reumon organizers, magazine fulfillment houses, banks, retailers and police de-

Not a lone wolf
US West did not do this alone.
The firm contracted with
Dataware Technologies, Inc. in
Combridge, Mass., which pro-

Corporate esections, pung is happening at a number-reels in corporations, and the st apparent is at the desk-maid Evelyn Selaer Wilk, sident of ESW, a Chicago-man and a companion of the comp

IS meets the mavericks of desktop publishing

BY ELLIS BOOKER

CHICAGO — Deaktop publishers can be found uprinkled throughout the departments of many large corporations. They are the ones putting out those eye-catching publications, prosentations and marketing materials that have helped add panache to the look of corporate America Agring the near counter.

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Michael Alexander

Another look at end-user

computing Every full moon, a lot of market rerchers like to

gather around a

ta and make predictions about minent demise of the inusers are getting smarter and how they will take over some of the traditional duties of informa-

I came across yet anotherstudy on end-user computing re-cently, but this one has a refreshing twist — mainly becau it does not foresee that end-user computing will bring toil and trouble for IS. In fact, this and trouble for IS. In fact, this report concludes that end-user computing eventually pays dividends to the IS department. According to The Dischold Group, a management consulting firm in New York, end-user computing is expanding rather than curtailing the acope of the information services function.

services function.

With so many flavors of enduser computing, it is probably in-evitable that IS would have to broaden its support capabilities rather than decrease them, ac-cording to Chester Frankfeldt, a senior associate at Diebold. Frankfeldt coordinated an evalu-ation of key technologies for Diebold and from that study was able to spot acveral end-user

3-D graphics serve many uses

ANALYSIS BY MICHAEL ALEXANDER

trois of engineers, are increas-ingly being used by manufactur-ers for their nontechnical, com-petitive benefits. That is the main conclusion of a recently

published study conducted by re-searchers at KPMG Peat Mar-wick & Co. on behalf of Silicon Graphics, Inc.
KPMG Peat Marwick's con-sultants visited five manufactur-ers in the U.S. and abroad to

study how 3-D computing was being used in the industry. The team found that such manufac-turers as Chrysler Motors Corp. in Detroit and Douglas Aircraft rease productivity, improve roduct quality, deliver new roducts to market faster, in-pire innovation and reap other

mefits.
The study noted that most assufacturers using 3-D comming were able to reduce the night of time on a project by at ast 20% to 30%. Time savings esuited in a faster market introted in a faster market intro-on because 3-D computing nated much of the design ews, tests and engineering age orders that the new

change orders that the new products typically require, the consultants said. 3-D computing also contrib-utes to better product quality be-cause of enhanced design work, sutomated model building and

Karsten Manufacturing Corp. in Phoenix, one of the five com-panies that was studied for the report, uses 3-D computing sys-tems to improve the design and manufacture of its blokks.

neer at Karsten.
"We didn't go to this system
for speed or turnover on design
but to get higher accuracy and
better design." Balsiger said.
"Now, we re getting computer
models to see if we like the prod-

line and tended to take me of the iron's precis

ministration's Ames R nrch Center in Mounts rw, Calif., for example, we le to download extensi ounts of data run on Cray R rck, Inc. supercompo

FTD picks multifaceted PC bouquet

BY RICHARD PASTORE

DOWNERS GROVE. III. Flower power will take on a new meaning in the 1990s. That is when FTD florists will begin flexing the muscle of Mercury 3000, a powerful multiuser, mul-

based system.

Mercury 3000 will permit
Florists' Transworld Delivery
Association (FTD) members to
simultaneously run off-the-shelf
business applications such as readsbeets, access a member-ip directory service and transmit and receive retail orders, and Robert Poirter, director of operations at FTD subsidiary Floral Network, Inc.

able to spot several end-user completing trends. It is is supporting an increasing diverse group of end users, ranging from those who use tunné since PCa to those who Comits used on August 20. The Total New York Comits and Ford Total New York Comits and Ford Total New York Complete Complete Committee Complete Complet

0386-based PCs will be located the florist shops and linked by jaleap 800 service to a Unisys

portunity and power that we wanted to put in the hands of our florists," Poirier said. Being able to run individually chosen with retail applicat

tion process consumed nearly a year's time. "We probably looked at 20 to 25 vendors all across the

country before we decid-ed" on the Unisys PCs, Pointer said. "What it came down to was that Us was providing a quality product with a well-known name, and it was the right technology at the right price." Floral Network al-

different vendors, tec Corp. and Televis ready owned the Unisys bost.

The Digital Research operating system won out over four or



current DOS would be our best and most flexible choice for the future." Poirier said.

Mercury 3000 is a new-gen-eration system for Floral Net-

Putting your money where your mouse is

BY RICHARD PASTORE

Several years ago, only a mad scientist would have thought of crossing a mouse with a key-board. But today, this bizarre hy-brid has come to life as a versa-tile peripheral for IBM Personal

built-in key pad. Each user-defin-able key can incorporate up to six different functions built from

Powermouse user.

Users can also cut down on

tions by editing, deleting or a ing to the disk-based key do tion tables. Couleur said be no trouble reprogramming unit for use with Autocad.

Rarney

CONTINUED FROM PAGE 35

visit in the process of the process

is ready to claim victory.

fainframe vendors my the tough job

e host side. These things are not just

maive; they are complicated, too.

rendors my having a large matalled

is critical. The only thing left to do

first inselve to back-end com-

ITTLE cooperative software has actually shipped, so all users breath.

puters running mysterious chunks of code with such names as YM, MYS, CICS, TSO, 054400, DBS, 50L/DS and other colorious acresyms. Little coopers seem can do is wait with beta breath to test the products and deflate these over-confident vendors.

where the products and delite these over-tical and the products and the products and the pro-cessor of the products and the products and the pro-tocol of the products and the products and the pro-tocol of the products and the products and the pro-tocol of the products and the products and the pro-tocol of the products and the products and the pro-tocol of the products and the products and the pro-sent and products and products and the pro-tocol of the pro-tocol of the products and the pro-tocol of the products and the pro-tocol of the pro-tocol of the pro-tocol of the products and the pro-tocol of the pro

etif smier offer, PCs &

IS meets CONTINUED FROM PAGE 35

ing" — continue independently, Any drive for integration, he said, in coming from the bottom up, as users want access for data to he resident in hosts, thus avoiding recentering information and du-plication of effort. At longtime Macintosh site A. T. Kear-res a measurement consultancy home.

plication of effort.

At longitime Michintonh site A. T. Kearney, a management consultancy here, totogration has not been an insu. "We have
a 1-year-old 3Com Corp. local-aren netdepartment, and right now we're considering adding a large file server to it,
possibly a DEC VAL", said Pat McNapossibly a DEC VAL", said Pat McNa-

McNumara said the firm is considering links among its four SCom networks. But there is no plan to link the production department Macs to the IBM mainframe, which handles accounting applications. David Henry Goodstein, CEPS confernations and Interconnect, Inc.:

David Henry Goedstein, GEPS collect-ce chairman and Interconsult, Inc.'s president, agreed that some users are caching the limits of isolated systems reaching the limits of isolated systems sources contained in host computers. But a number of S managers are under such another of S managers are under such match and chairmantained to on-lim-sted the such as the such as the will require extralegies for accommodating of the computer of the such as the will require extralegies for accommodating of the such as the such as the such as the will require extralegies for accommodating, Caterpillar Tractor Co. in Poorti, Bu, La tried to integrate desistop, depuri-tant such as the such as th

mental and production publishing systems for some time. But according to Tom Moore, project leader in the company's form of the publishing of the publishing of the publishing of the control of the collection. "I didn't now any products for defaulty on corpreted-level manual for defaulty of the collection of the colle



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CTI Amougan Ciprati Dississ
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9-

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IEM usually within 90 days.
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other vendors. Global delivers accounting
software designed for world-data companica. And only Global Software goes to the
ends of the earth to support you.
Maybe that a why thousands of users sing.

While the other guys are singing the blues

Alexander

CONTENUED FROM PAGE 3

work on minicomputer and mainframe networks. Each of these groups has unique needs that must be supported. Local-area networks require greater levels of support than what many IS professionals may realize at first, Frankfekt points out. What's more, be adds, supporting end users on LANs will be even

porting end users on LAN's was or even more time-consuming.

"As PCs mature, and LAN's in particular people would like to be able to get to information in the enterprise," Frankfeldt says. "That's not going to happen from an end user sitting in a department. 13 will be responsible for the information architecture that would allow access to the enterprise's data.

"They will also spend more time building the interface between the envi-

building the interface between the cavironment that the user sees on the PC and the data that is relevant to end users," Frankfeldt predicts.

Another trent seemined by I be Debold Group is that as end-user compatin matures, end users will become producers as well as consumers of information services. That's not so surprising if you consider that end users are already using of the-shelf and tware to create applications for themselves as well as others within the organisation.

The management consultancy, however, says it believes that emerging tech-

ceesing and hypertext will require added support from IS. End users will need help in acquiring and using technology that enables them to produce and revise documents on a continued basis as well as

documents on a continual basis as were asprovide the distribution capabilities the users need.

End users will be more apt to provide others with information they have generated in the form of a formatted document, without assistance from a publications

without assistance from a publications specialist, thanks to deaktop publishing tools and "compound documents" encompassing text, sound and still or moving images, the consultants any.

At one time, an end user received

computed results that were fixed in chedule and format, Frankfeldt exactions on demand, varying the data to nanlyze different business operations or conarios," he says, "Now the end user can develop the presentation format or verse the entire application as desired with sophisticated media and trools. In so doing, be increasingly performs IS activticis without having a specialized IS backround but requires new types of sup-

Debold also has found that as enduser computing expands, the traditional services provided by IS decreases. Before that transition takes place, however. IS often finds itself with more than it can manage in both supporting end users and carrying out its traditional duries. IS prefessionals should be aware that this

> abilities can consume all of their deient's resources, Frankfields say, see through the bulge, the IS desent finds its budget is less consed, primarily because end mers ascesses of the financial burden.

descoder is a Composityworld senior editor

Wang offers a window with a view

BY DOUGLAS BARNEY

LOWELL, Mass. — Wang Laboratories. inc. loves Microsoft Corp.'s Windows. The minicomputer maker recently as nounced Clearwise, a product that makes this search quase interface even passing.

Weng is strongly backing Wendows be cause the firm views it as an emergia standard, according to Dan Miley, menaer of worldwide marketing for system and communications products. In add tion, Windows tools and feels like the OS/2 Presentation Manager and the

— two other possible interface standards. Pricod at 57°, Clearwise vanue on top of Windows and works with existing Windows application. The system is assed as individual end users. It reportedly man age; and organises Windows application and fifth is a manuscribe in conwith the graphics. In the conwith the graphics, instead of test-based to the man used by the Microsoft Windows the man used by the Microsoft Windows to the control of t

In fact, icons can represent a variety of things, including executable files, subments, applications or a uner-selected combination of windows and icons similar

to the way macros automate.

Users can also determine where particular windows will appear on screen as modific their size. Moltinic windows of

ticular windows will appear on excreen an modify their siess. Moltigle windows on be arranged in a variety of ways, including overlapping, an adiguod grid or front-t-back. Once a user is pleased with the own, it can be sweed. The next time the system starts up, the windows and icons with the country of the control of th

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NEW PRODUCTS

Software applications ackages

relopment Corp. has announ

any's word proce the company's warm particles are regram.

According to the vendor, the program we includes shading features for high-piting critical information as well as a le conversion utility. Version 2.1 is said. fier support for several printers, in-ing Apple Computer, Inc.'a Laser-er II NT/NTX and Hewlett-Packard Co.'s Deskiet Plus and Laseriet II-D.

The product will cost \$450, according

to the company. Registered users of Ver-sion 2.0 may upgrade for \$20 and registered Version 1.0 users for \$75, the comny said

55 Qambridge Pkwy. Cambridge, Mass. 02142 617-577-8500

Engineering Analysis Services, Inc. has introduced a computer-aided piping engi-neering software application for IBM Per-Tata Micro-Pipe reportedly allows the er to determine basic design crite-

ria such as pipeline materials, pressure and temperature. Functions include process flow diagrams, piping and instru-tation diagrams, scheduling and pretation diagrams, scheduling and pressure drop analysis. The sample version of the software is available for \$50. Engineering Analysis 691 N. Squirrel Rond Auburn Hills, Mich. 48057 313,377,4200

Utilities

A package of word processor macros that support the Standard Generalized Marksupport the Standard Generalized Mar up Language (SGML) document mark

standard is now available from Allen Creek Software, Inc. Called Microtag, the macros were de-

ned for users who wish to continu using existing what-you-see-is-what-you-set word processors but find it increasingly necessary to product SGML docu-ments in parallel, the vendor said. It is available in versions for Microsoft Corp.'s Word and Wordnerfect Corp.'s Wordner-Word and Wordperfect Corp.'s Wor fect and is priced at \$49.95 per copy. Allen Creek Software 1209 W. Huron Ann Arbor, Mich. 48103

313-663-4248 Overdrive Systems, Inc. has announced Version 2.0 of Overdrive 2, the company's merge and document assembly pro-gram for Wordperfect Corp's. Wordper-fect and Microsoft Corp s Word word

processing packages.

The add-on package reportedly provides a mergelink function for importing
data directly from Ashton-Tate Corp.'s Dose program as well as ASCII and word processing files. Features include pulldown menus and query-by form, and the product is priced at \$149. Overdrive Systems Suite 260

23811 Chagrin Blvd. Cleveland, Ohio 44122

216-292-3425 Board-level devices

Profit Systems, Inc. has expanded its Elite series of memory and multifunction boards for industry standard architecture microcomputers

According to the vendor, the Elite 16 Plus Hypercache was developed for random-access memory-intensive operating environments, and features reportedly in-clude 16K bytes of static RAM high-speed memory cache and optional cache expan-

sion to 32K bytes. The product operates on Intel Corp. 80286, 80386SX and 80386 AT-based systems, including the IBM Personal Sys-tem/2 Model 30 286. Pricing ranges from \$895 to \$1,895

Profit Systems 30150 Telegraph Road Birmingham, Mich. 48010 313-647-5010

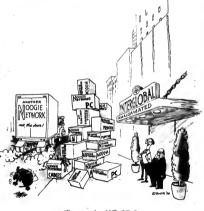
FTG Data Systems has announced a light-The PXL-380 Precision Light-pen interface for PC and AT bus systems. The PXL-380 Precision Light Pen Board half-size card provides a light-pen port for IBM Personal Computers and compati-bles, including the IBM Personal Sys-tem/2 Models 25 and 30.

The device is said to support all IBMstandard text and graphics modes and is priced at \$189. A five-year limited warranty is included. PTG Data Syste P.O. Box 615

Stanton, Calif. 90680 714-995-3900

An 8M-byte memory expansion board for IBM Personal Computer AT-class users has been announced by Monolithic Systems Corp.

The Justram/ATW single-slot board provides from 1M to 8M bytes of extended or expanded memory in 1M-byte in-crements and can backfill conventional memory to 640K bytes, according to the vendor. The product is priced from \$725, and volume discounts are available. Monolithic Systems 7050 S. Tucson Way Fortewood, Colo. 80112



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hics capabilities mai COMPAO A

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NETWORKING



Building without a foundation



strategies and, in this case, just Last month, sippy colorful menus introduced many users to the first concrete reason they

the first concrete reason they have seen to embrace the OS/2 operating system and Personal System/2 hardware.

The integrated Officevision software is truly the first step toward fulfilling IBM's promise to tie users located anywhere on the enterprise into any of four strategic, but previously non-communicative, IBM hardware

In particular, Officevisi es to rescue users from

Spectrum shows OS/2 version of Xcom

BY ELISABETH HORWITT

NEW YORK - Users who consider IBM's OS/2 Extended Edition and L16.2 as not only complementary but also necessary to

the contraction of the contracti

to automate much of the filetransfer process, allowing users to carry on traditional, CICS-to-

Chrysler Corp. is currently alusting Xcom 6.2 for just evaluating Acom 0.4 for just such an application, according to Marty Cummins, who heads the auto maker's LAN Connectivity Group. If all goes well, the prod-

Group. If all goes well, the product will allow programmers on Personal System/2s running OS/2 Extended to distribute software updates to some 6,000 remote sites via as LU6.2-based connection with IBM mainmes. Cummins said.

frames, Cummins said.
Chrysler is also considering a
3270-based connection from
Digital Communications Associates, Inc., but it would be better to use LU6.2 because "we
don't want to saturate the 3270
system with LAN-based work

roups," he added.

Chrysler management con-idered at one point the idea of sing the OS/2 Extended servers rather than mainfo

software distribution centers, Cummins said.

"The problem is capacity: No one has figured out how many modems and servers would be needed, while we know the host is well-suited" to such an appli-action, be added by the con-cition, and the control of the Using OS/2 Extended servers and LU6.2 connections is likely-to be part of "Thase 2 of networking" at Chysler, Cum-networking" at Chysler, Cum-

mins said. Another potential use for Xcom 6.2 is as the foundation ror Acom o.2 is as the foundation for a peer-to-peer, local-area network-based communications system between Chrysler and its dealers, be added. OS/2 Extend-ed servers would act as linitions between a variation of the control of t

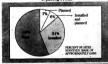
between a variety of third-party

Spectrum Concepts hopes ar's end to have redesign entire Xcom 6.2 line to co also become generally avai at an undisclosed date. Xcom 6.2 for OS/2, scher

o Chase Manhatta the field. Page 44.

Data View

T1's fortune



No safety net in sight Innovations leave systems to flirt with disaster

WASHINGTON, D.C. - Some of the technical advances that ing to entice big-business cus-tomers are also leaving the nation's telecommunications sys-tem more vulnerable to dis-

e, III., central office, which darupted numerous busin networks, was an early war sign that more attention at be given to building route di sity, redundancy and sec

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—Jack Carnine, V.P., Products Group
Sunkist Growers, Inc.





Chase takes multivendor route to value

ONSITE

BY ROBERT MORAN

NEW YORK — The Chase Manhattan bank NA creates its own bargains with a teadfast multivendor approach to achieve ag cost-effectiveness, diversification and perational redundancy in its global tele-

on's second-largest bank has

erlayed its strategy into an annual 10% screase in costs while increasing its

corporate systems, said Chase Manhatta is "multivendor and will in fact shop is "multivendor and will in fact shop." Bond, interviewed after Chase signed a multimilion-dollar contract that gave MCI Communications Corp. a portion of the bank's worldwide network, said, "We will use whoever has a good service we think our customers will want to use."

osts saide, the bank takes the multivendor approach to ensure that it has di-verse routing and redundant operations. However, a contract signature is no guar-antee of diversification. "You have to be very careful that you know exactly what routing they [the vendors] are going to give you." Bond said. "because the ven-

one another. Bond added that pologies is another way to guarantee that trans

ons travel have diverse connections Among the many tech-nologies the bank uses are fiber optics and sat-It is also on a "strategi kick with Netview" in an atte crease reliability through centr

automating network ma



Consolidation of it vidual circuits into T1 backbones is another method by which the nk hopes to reduce bank hopes...
its telecommunications
budget, Bond said. "By
moving traffic that had
been off of the network
"answork," she

network structure Although no single factor has been the sole

contributor to bottom-line savings, Bond said that negotiations with vendors, espe-cially for volume discounts, have contrib-uted substantially to the bottom line. cially for votable encourse, save consusted substantially to the bottom line.

To that end, vendors meet two teams when vying for the bank's business: a combined technical and a financial team, which knows what to look for from a vendor, and contract negotiators.

In addition, Bond said that the bank ex-

In addition, Bood said that the bank ex-mines its vendors very closely. "We acrutinize our billing to make mare we are pring for what we get and not paying for what we don't have," she said.

Although financial teams examine all bills, Chase Manhattan also hires the ex-vices of consultants who investory the bank's communications bills for discre-macies, charge a percentage of savings as their fee and help the bank negotiate with

ONSOLIDATION of individual circuits into T1 backbones is another method by which the hank hopes to cut its telecommunications budget.

the telephone companies, according to Bond The MCI contract calls for redeploying a portion of the bank's global telecom-

inications network.
In 1988, MCI netted a 250% incres of the bank's domestic voice traffic and a 30% increase of its international traffic during 1987, according to an MCI spokes-

Although neither MCI nor Bond would disclose the value or duration of the con-tract, the MCI spokeswoman said that the agreement had a projected 1989 value of

agreement had a projected 1989 value of approximately \$10 million. Bond said that the bank's voice and data traffic has in-creased with other vendors as well. MCI will also supply services such as artificial intelli

MCI 800 features and MCI Mul for electronic transmission of financial reports.

The telex services use Al technology to lessen manual handling of messages. The Al component, which was developed with the help of the bank's Al team, interprets key sepects of messages and helps to structure them, and Bond, who added that the bank is negotiating with other wandom for ministra exclusives.

proach, the bank will also use other elec

Cost reduction is a big item at the bank; Bond said. "It is important for us to ensure that we are efficient," Bond said, "but it is important for us not to sacrifice cost efficiency for effectiveness.

Why more companies choose high-speed channel interfaces from KMW Systems' Auscom line.

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can match. KMW Systems' channel interfaces have history of reliability, with field-tested

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made us number one. For complete information on KMW channel interfaces, protocol converters and graphics processors, call the toll-free number below. Or write KMW Systems. 6034 W. Courtyard Drive, Austin, TX 78730.





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hase V routers to provide OSI omoliant file transfer, inter

compilizat file transfer, infer-computer transactions and re-mote terminal sessions for Nynex customers. The trial ser-vice will be available through Nynex's Switchway Switched 56K bit/sec. service and Super-path T1 service, according to Nynex.

DEC-Pacific Bell pact DEC also announced an agree-ment to help Pacific Bell set up an EDI service. The EDI offer-

ing will be part of the local carri-

er's Connection, an X.400-com-pliant E-mail service that DEC beloed develop under an existing

Intelligent networks steal show

But customers may have to wait for the enhanced management capabilities

BY ELISABETH HORWITT

ANAHEIM. Calif. - A beyy of host-based communications plat-forms, decked out with the latest connectivity protocols and capa-bilities designed to add intelli-gence to regional carriers' network services were the star attractions at the recent Super-

comm '89/Network '90s confer-But customers may have to wait a while before they can enwast a wase before they can en-joy the enhanced management capabilities, information ser-vices and other bounties provid-ed by such services, according to

Jeremy Frank, a program di-rector at Stamford, Conn.-based market research firm Gartner Group, Inc., heraided the Super-comm announcements as "daz-

Word of caution However, Frank cautioned that the Bell operating companies (BOC), which still enjoy virtual monopolies of the local loop, monopolies of the local loop, have little competitive motiva-tion to install such sophisticated systems at their central offices. "If the BOCs are dragging

their feet on providing regular network services such as frac tional T1, what will they do with enhanced services outside their purview?" Frank said.

Local carriers, host vendors and central office switch vendors put on a brave show of intelligent networking products and alli-ances at Supercomm, held here

the OSI-com two weeks ago. One major focus munications platforms designed to bring standards-based intelli-The two comp tion with regional holding tion with regional housing spany Nynex Corp., an-meed the trial of a high-capac-

nounced the trial of a high-capacity digital data communications service based on the industry standard. The service will use Northern Telecom's DMS Supernode intelligent central-of-fice switch and DEC's Decent For example, Stratus Com-puter, Inc. introduced OSI Serv-er, which is said to lay the groundwork for its XA 2000 Continuous Processing Systems to support such Open Systems

F THE BOCs are dragging their feet on providing regular network services such as fractional T1, what will they do with enhanced services outside their pur-

> IEREMY FRANK GARTNER GROUP

Interconnect-compatible net-working applications as X.400-based electronic mail or elec-tronic data interchange (EDI),

view?"

Stratus said. Stratus is positioning the XA 2000 line as adjunct processors that will support such intelligent networking applications on ei-ther s carrier's or a business us-er's network switch, the compa-

helped develop under an ensuma contract. Northern Telecom acnounced Nettrate, or set of notware tools designed to help carriera design, simulates and configure its networks from a
personal compare. Uninys Corp. amounced and
demonstrated Network Accesse Platform, an applications platform designed to support a variety of carrier-based intelligent
networking applications, the

 The trend toward high-capacity, fiber-optic cables leads to ty, mer-optic cabbes leads to fewer geographic transmission routes and increases the concen-tration of traffic on those routes. • Similarly, the use of high-ca-pacity digital switches results in fewer switching centers, with each one handling more traffic.

each one handling more traffic.

• Competition has led to a prolif Competition has led to a proliferation of networks and vendors.
 Although this provides some network redundancy, the diversitions creates technical incompatibilities. patibilities, so it is not clea

whether one network could pro-vide backup for another. More over, some of the transmi lines are laid along the same bridges, highways and other rights-of-way.

'If fire destroys the only cen tral switching office that can route emergency traffic from a given area or if an earthquake uproots critical optical fiber

transmission lines, essential communications linkages will be severed," the report said. Simply put, "it is becoming ingly easy to make the

Obstacle course

oun conference us to a raft of brea butry in th

the many compared of the compa

Sementhing to BOC or With the local loop transport market locrative but filet, the BOC face a deliment when it comes to expanding into the en-hanced networking nervices that they recently got regulator permission to settle. Frank with.

"All of them are devoising at the marginal that enhanced are vives offerly but it have understanding in tables and marketine to sed an application rather than just transport — apprecia that the BOC have already proved they lack, according its

Fruit.

One factor that could change the BOC' behavior, Fruit, and would be strong evidence of domaind for intelligent to vices from major copyrate sairs. Several bedommunication unmagers have recently expressed dissutiation to Completerated distort sair which their BOC were last change distorted exervices.

"I really think have been seen with which BOC were last change distorted exervices."

It really think have been careful and not come across in said-by the control of the contro

ELISABETH HORWITT

ert of Unisys' push to form alli-noes with telecommunications ment ervice organizations through its vend

terfaces and an AT&T-operat-

The panel that produced the report "Growing Vulnerability of the Public-Switched Net-works" was chaired by John C. McDonald, vice-president and

tary attack.

ing to the report.

In addition, the council recommended more security controls for network software and supported the NCS plan for a special voice/data network to provide service for 30,000 gov-Ministreamer Desk-Top 9-Track Tape Drives

Throughout the report, there is a trace of nostalgia for the pre-divestiture days of the Bell Sys-tem, which featured a unified na-

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Safety net

and databases for purposes of network management and con-figuration. The concern is that computer hackers, saboteurs or disgruntled employees could use this opening to damage the net-

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erable," the study warned.

One of the study's recommendations said the U.S. goverument should explore ways to
"exploit the capabilities of private network during emergenpublic network during emergen-

However, the report said pri-ate networks will be useful only vate networks will be useful only
if they employ protocols and interface gateways that are compatible with public-network
standards, and if the gateways
can be tested periodically.

The study was conducted for
the manager of the National
Communications System (NCS).

tional network, sta ed national emergency center.

The changes wrought by the 1984 divestiture have fragment-Communications System (NCS), a special unit of the U.S. Depart-ment of Defense created after the Cuban missile crisis of 1962 ed the national network and made emergency planning more difficult, according to the report. Indeed, the Defense Depart-ment opposed the AT&T break-up on the basis of national securito improve communications dur-ing national security crises.

In its recommendations, the council said the NCS manager should avoid overrelisance on fiber lines and explore the use of cellular radio and satellites to provide alternate routes. Some

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6 our space station program and design the U.S. Navy

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Office System and its

monte control by the man its clums y interface. In addition, a couple of long-standing questions were cleared up. Yes, IBM will condenced to talk to Ethernet; and yup, as was suspected, IBM will support Microsoft's OS/2 LAN mager application progra-ng interfer

ang interfaces. And there was yet another racious bow in the direction of pple — iconic interfaces. Interfaces, That do you know about that? etter yet, IBM was talking roduct abjuments in four onths. Heck, what's a quarter ben you've already waited two

Yes, on the surface, there sure was a lot to smale about. IBM has thrown a bell of a forward pass. All that remains now is for users to catch it en masse, carrying IBM forward into the end sone of prosperous quar-

tent anne or prospersion quar-terry earnings.

But after they got past the "unwie-nowie" stage, many us-ers were left squirming, in-stead of clapping their hands, many are so busy wringing, them that they may drop the pass. In abort, they are uneasy

and with good reason.

I predict OS/2 Extended Edition 1.2 will be the thorn in the side of Officevision/2 LAN Series. For months, IBM and Mi-crosoft have been desperately

ying to sell users on the wor-ers of OS/2 Standard Edition, over mind its 4M-byte memor quirements and limited appliper must its val-type assessing pairements and limited appli-ions availability. It's gotten the frigid welcome that both ms were forced to roll out re-ces. Even that has yet to fire

BM HAS THROWN a hell of

a forward pass. All that remains now is for users to catch it en masse

up the no-far glacial move towar OS/2 implementations. Most users have invested heavily in networks running No well and 3Com network soft-ware. They are still in the pro-cess of migrating their users from Intel 80286 to 386 work-

from Intel 80286 to 386 work-stations; they haven't even got-ten to the operating system yet. So what does IBM come up with? A great product concept that unfortunately requires a PS/2 Model 70 (forget the Mod-

PS/2 Model 70 (forget the Mod el SOZ), about 8M byten of memory and OS/2 Extended Edition 1.2 — not just on the serv-er but on the workstation too. If you look closely at IBM's "Twories," Standard Edition

GM exhibits money-saving MAP

BY ELLIS BOOKER

DETROIT — General Motors Corp. recently showcased some of its top manufacturing technologies — computerised design and production methods that GM officials said will save the company \$100 million sanually.

Company officials attributed GM's strides in improved quality and reduced costs to manufac-

ng systems, which he call ent nartner" in GM's

The emphasis is warranted. A large chunk of GM — \$39 billion is represented by property, setly plants and equipment, ac-rding to Gerald L. Elson, exec-

utive director of advanced manu-

are exector of arvanced manu-cturing engineering.

"We spend billions every year vesting in new buildings and and the spend bil-ness in maintenance." Elson aid, adding that "there is great said, adding that "there is great untapped potential" to reduce these costs by more closely knit-ting together the manufacturing and product design processes. Elson said GM, a vertically integrated organisation, can quick-ly convey information about new

the point over and over — sup-port for Extended Edition, DOS

station? We are talking major green-backs here, not to mention wholesale migration at the workstation, operating system and network levels. Yet when we, Microsoft and others aske

M, both at the press confer-ze and in interviews later, to

explain why you can't or shouldn't use Standard Edition on the dealstop, we couldn't get

Maybe IBM has something up its sleeve that will make this all crystal clear at some point down the road. But that doesn't

der SAA, and they need solid sons why they should choke wn Extended Edition and its

horrendous memory require-ments at the deaktop.

Users need answers, and without them, all the rebates i the world won't help IBM sell

pany. "We will achieve a con pany. "We will achieve a com-petitive advantage because of our integration," be said. The exhibits at GM's Ad-vanced Manufacturing English neering Teur Center in Warren, Mich., included robotic vision. expert systems and automated laser welding ovar

> But the largest of the 17 displays was a computer-integrated man-ufacturing demonstration using the Manufacturing Automation Protocol (MAP) network proto-

col. MAP is the common communications protocol for multivendor, multiequipment networks that GM has championed in the past five years.
To date MAP networks are

stalled at 18 GM plants, and instance at 10 Get paints, and GM said another eight facilities are deploying the latest imple-mentation of the communica-tions architecture MAP 3.0. Within the next six to nine months, you'll have plug-and-play," said Michael A. Kaminski, manager of MAP communica-tions at GM, who predicted that

cturers, it ma

GM's Elson sees untappe totential in MAP methods

ear, Elson noted, GM b capital equipment and toolis from 10,000 different sunnic In addition to con verse systems physically, GM also wants to use those devices

and processes more efficiently and thus has invested beavily in expert systems and artificial in-telligence. Ruth M. Zarger, disenigence. Ruth M. Zarger, di-rector of GM's cognitive sys-tems group, noted that even during the lay-offs that hit the A common systems approach ich as MAP is important for GM because, like other large automobile industry at the start of the decade. GM expenditures sprawling supplier list. Last for expert systems technology

> Meanwhile, GM is learning how best to use computerized diagnostics in plants and some es opting for lower-tech solu-

> Harlan Neuville, director of machine intelligence, said the goal of these more primitive sysns is to not make decisions Rather, a machine intellige system detects a flaw and in stely alerts a human operator "It's inspection by exception," Neuville said, adding that this technology, often built from off-the-shelf systems, is chesper to use and deploy.
>
> GM officials said they are

publicizing only about 5% of all the new manufacturing technologies they are exploring. Re-garding future plans to market these technologies to others, El-son said, "Money won't be made in licensing but in the impact (of these systems) on GM's busi-

nd the MAP 3.0 standard, in-NFW

or vendors would raily be-

or nonprogrammable worksta-tions. So why the urgency to push Standard Edition even just a week prior to the Officevision Local-area networking hardware

ere's clearly a need for ded Edition at the server Sun Microsystems, Inc. has an-nounced that its Sun 386I workstended Edition at the server - that's where you get the re-sired LU6.2 and X.25 connec-vity support. But at the workstation now connects to most popular personal computer local-area networks.

area etworks. By supporting Novell, Inc.'s Netware and 3Com Corp.'s 3+ LANs, the workstation report-edy can be linked to more than 60% of existing PC networks. Support for Novell Netware 2.1 running over Ethernet or To-ban-Ring networks will be included in Sm05 of 0.2, schooland for release in July, Pricing for the workstation begins at 35,990 and tackets high-resolutions.

Sun Microsystem East Coast Division 2 Federal St.

on the road. But that coems to the road the third technology issens today. Users need re-grance that their network estments will be supported ler SAA, and they need solid they need they need solid they need Computrol, Inc. has introduced a Manufacturing Automation Pro-tocol (MAP) network interface

controller board designed to link IBM Personal Computer ATs, XTa and compatibles together The Model LP-25 controller is a single board that fits the PC bus design and runs Layers 2 bus design and runs Layers 2 through 7 of the MAP and 802.4

cols, according to the com-The product is based on a 12-

MHz 32-bit Motorols Corp. MHs 32-bit Motorola Corp. 88020 microprocessor and re-portedly delivers up to 75K byte/sec. across a MAP network from one application-level task to another. Pricing begins at \$2,300.

PRODUCTS

Computrol 239 Ethan Allen Highwa Ridgefield, Conn. 06877 203-431-2000

A personal computer peripheral-sharing network has been intro-duced by Equinous Systems, Inc. Turgeted at the eight- to 16-lows were to share printers, mo-dems and mainframe computer ports, as well as perform file ex-change functions, the company wit

The product reportedly su ports both parallel and seri printers and is priced at \$995. Equinox Systems 14260 S.W. 119 Ave. Miami, Fla. 33186 305-255-3500

Arche Technologies, Inc. has in-troduced two Arche Netshare lo-cal-area network interface cards for use with Ethernet- and Arc-The Arche Netshare-E Eth-

ernet interface card is reported to be Novell, Inc. Netware compatible and implements the 802.3 Ethernet standard. Three levels of k

according to the vendor. The card is priced at \$295. The Arche Netshare-A inter-face card in also Netware-com-patible and reportedly imple-ments a modified token passing scheme, Arche Technologies

The device was designed to network both proprietary work-stations and IBM Personal Comters and compatibles.

Arche Netshare-A carries a

price tag of \$165. Arche Technologi 48881 Kato Road Premont, Calif. 94539 415-683-6760

A local-area network file m ement and retrieval system id to be integrated across both agnetic disk- and optical disk-

based activors severa has been amonomed by Sparters, loc.

The Optical Archiver is no spoint with the company of December 2000 and the Company and the Comp trieval server.

MANAGER'S JOURNAL

FXECUTIVE TRACK



oformation ser at Pirestone Tire & er Co. in Chicago. lina, 48, joined Fire-

one as manager of electron-data processing customer He was subsequently pro-moted to director of computer and communications ser-vices in 1985 and had been executive director of MIS

nce August 1988. The Machigan native earned both his bachelor of science degree and his man-ter's degree in business ad-ministration from Eastern ican University

plementation at Cross & Blue Shield assachusetts in Bos-

mander will he re-le for directing the de-est of System 21, the pany's new cross-func-al enrollment, billing and ns-processing system. oder was previou

istant vice-presid orate operations and ascorporate operations and as-sistant vice-president of claims operations. He joined Blue Cross & Blue Shield in 1971 as a statistical analyst. Commander holds a bacheor's degree from the Univer-ity of Notre Dame and a maser's degree in business dministration from Boston college. He resides in Marsh-

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A high degree of favor

Decision to forgo MBA has not blocked Chism Mackie's path at Transco

BY ALAN J. RYAN

he one thing Susan Chism Mackie says she truly regrets

Mackie says ab truly regrets in her decision not to pursue a master's degree in business administrations after gradual ing from Vandershit University. At the time, the Arkansa native field the had had enough schooling. Today, the walls of bee specious 20th choor officer der plenny of surface at vive-president of information entire at vive-president of information entire at vive-president of information officer at Transon Cherry Co. in Boaston, Chima Mackie, 42, has no time for classes. She has held the position at Transon. She has held the position at Transco which last year reported sales of \$1.2 billion, for the past four years. No matter. MBA-less as she is,

she's still got plenty of respect from the top at Transco. "These days, being able to convince everybody that a woman can make it in an energy com pony, can make it managing a lot of technocrata and can fit in very well with a lot of men — which is the case here — is a real credit to her," says Transco Chief Executive Officer

Transco's 64-story corporate head-quarters tower, fashioned after the Empire State Building in New York, bursts from the Houston soil and can oursts from the Houston soil and can be seen for miles around. Likewise, the influence of the demanding Chism Macice and her department looms over Transco. "Susie is one of those people who goes in about 100 direc-tions at once," says Lynn Haltom, di-

rector of gas information systems.

In 10 years at Transco, Chism Mackie has chimbed the systems ranks through data administration jobs to

PROFILE: Susan Chism Mackie



ton: Vice-president of IS and chief information officer, Transco Energy Co.

tor of systems and vice-president, be-coming Transco's only female corpo-rate vice-president to date. In that

rate voce-president to date. In that time, the company's 10-year systems plan has evolved as the gas industry, government regulations and systems have changed, Chism Mackie says. Although Chism Mackie says she is o Superwoman, that can be difficult to elieve. Until her marriage a few seeks ago, she was a divorced woman weeks ago, sae was a trivotee within raising two teenage daughters and jug-gling her time among her job, family and the family a weekend retreat — a

farm where she raises 16 racehorses, including a grandson of the lamous thoroughbred Northern Dancer.

"I' can't help but have tremendous respect for the way she tries to keep her priorities straight," Haltom says.

her priorities straight, "Hattom says, "Those gir's are everything to her, and she takes the time to talk to her kids." Talking to her daughters does not always bring about the results Chism Mackie would hope for, though, especially when it comes to encourage them to study hard in school. "T

say, Why would we want a job like

Continued on page 5.

New ASM chief touts broad IS approach

BY CLINTON WILDER

ames W. Prickitt has seen many different facets of the information systems profession in his 30-year IS career. Now, as the new president of the Associa-tion for Systems Management (ASM), be wants to encourage his colleagues

I call it the Renai proach to systems work," said Prickitt, who took over the one-year elective position last week. "There's so much w technology that the people who derstand where the pieces fit have a understand where the paces it have a leg-up. If you get too specific in one technology, you get locked in and can't see the forest for the trees." Prickitt is in his 20th year in IS at San Prancisco-based Chevron Corp.

ms group. At Chevron, he has rised on office, transaction and general data processing systems. Before that, he was IS manager of the former

little bit of everything," he said.

Prickitt's goul for ASM during the conting year is to broaden the technology and management borinoss of its members. There is plenty of diversity within the 9,000-member association. Prickitt said, but second-6.

reers too often on a single specialty.

"Our membership has always been broad-based, from engineers to top managers," he said. "But we want all of them to have a better chance to absorb a broader view of the world ---

oups. Prickitt said ASM hopes to recrui more of what he calls end-user coun-selors — professionals, either with or without traditional IS backgrounds who have become to bacagrounds, who have become the personal computer technology gurus of their work groups or departments. We want to help him pick up the broader systems background that is necessary to do his behavior.

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Freestyle from Wang. A dramatic breakthrough in communications that's incredibly simple.





Right from your Freestyle "desktop," you can mail a Freestyle page via a computer network or FAX it, find out where it's been, select another document to review, create a new one, or print it.

The key to strategic IS advantage: People

BY TOM BYRNES

LOS ANGELES - Information technol

residents from the bankings who pronatical and information services in-ries who took part in a recent Univer-of California at Los Angeles-

"The computer is a business tool," d Emil P. Martini, chairman and CEO of rgen Brunswig Corp., a pharmaceutical tributor. "But it will be a company's ability to provide that extra level of sup-port and personalized service that will set

competitors apart in the years to come.

"People'a roles are often shifted rather than lost," Martini added. "While we have replaced our telemarketing staff with a computer-based ordering service, we still use the folks who had manned the

s to place follow-up calls."

ment and its Information Associates program, which is hoping to create a forum in which business leaders and educators can

discuss future IS strategies.

discuss future IS strategies.

"Technology is important; no one questions that," said James F. Montgomery, chairman and CEO at Great Western Francial Corp. "But it has to be seen as a support tool. There is no replacing personal interaction between managers and their staffs and the company and its cus-Martini said he believes electronic data interchange can be used to create the reality of a "storewide perpetual inventory' system between drugstores and his distri-bution operations. Artificial intelligence and executive information systems can be used to analyze business problems and provide a variety of possible solutions in

By increasing the ability to fill orde sickly while improving management's wareness of the options at hand, a comry can rapidly react to shifting man s on a number of levels.

This need to provide do tools to assist managers faced with chang-ing business requirements was echoed by

ing business requirements was ecoood by Richard D. Whilden, an executive vice-president at TRW, Inc. "TRW's use of modeling applications to improve our business decisions has nown us that these tools are also usefu to our customers in their marketing ef-forts." Whilden explained. "As worksta-

T'S TOO EASY to let these programs overcalculate things and take a user out of the decision-making loop, You can't forget to trust your own business sense and intuition."

> IAMESE MONTGOMERY GREAT WESTERN FINANCIAL

tions become more prevalent, even small er companies will be able to develop models of their targeted customer base and then calculate the return on proposed marketing campaigns before they initiate them. It will make them more effective erprises as well.

While the proliferation of such pro grams among a broader range of users may be interpreted as a signal that high technology is finally becoming a commod-ity, it was clear that the role of the individual will not be displaced

Montgomery outlined the types of modeling programs and executive sup-port tools used by Great Western in its move to become a leader in the savings and loan industry, but he was quick to point out the potential hazards of becom-

You have to be careful," he warned. "From a management viewpoint, it is im-portant to keep reports easy to read, freently updated and designed to focus on the 'what ifs' of contingency planning. It's too easy to let these programs overcalculate things and take a user out of the deci-sion-making loop. You can't forget to trust your own business sense and intu-

The human aspect of future bus strategies also proved to be a hot topic during the question-and-answer session following the discussion. When asked if inreasoning the discussion. Water sakes it in creased automation meant that the role of individuals or personalized service would be displaced by technological substitutes, the punel responded with a unanimous no. Whilden asserted that "commerce is

 and will remain — people doing business with people. Since technology is only as aid in enhancing people a capabilities, human nature will still play a prodominant. role in the way things are done

rnes is a strategic marketing or iter in the Los Angeles ares.

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Clinton Wilder

Wall Street II: The IS factor



gained through a particular system.

These are tough nuts to crack and are unlikely to be resolved anytime soon. But just for fun. let's take a look at a world in

just for fun, let's take a look at a work which IS capabilises have found whetir way onto the corporate balance sheet along with bricks, morter and goodwill.

This gimpse of the future is partially credited to Tony Brewer, director of the Butler Cox Foundation, a British IS research outfit. At least month's IS executive forum at Babano Colleges in Wellesley, Mass., Brewer related a conversation

ley, Mass., Brewer related a conversation with executives of Grand Metropolitan PLC, the UK firm that acquired Pilisbury. According to Brewer, the Grand Met-ropolitan folics said that IS "was not an issue at all" in their decision to go after Pillsbury or in how much to pay for it. But when they later learned of such Pillshury IS functions as the Burger King point-of-sale data collection system, ac-cording to Brewer, the British executive said knowledge of such IS assets before-hard might have influenced the valuation

of their tender offer.

Between story immediately got this observer's mind going. The Gordon Gel-kon of the corporate raider word, armed with their spreadons, but not opportune and colabor phonon, cortism's like to perfitte advantage, Along with their formulas for breakup values, debt-to-equity ratios and just hook going the control of the raiders look at the ES functional So some from the screenly for Wall concern from the screenly for Wall corporation of the control of the screenly for Wall corporation of the control of the screenly for Wall corporation of the control of the screenly for Wall corporation of the CN, Bull, it me thow you how the game is pieced. Let's take a piecel. Let's take a piecel.

you how the game is played. Let's take a look at Teldar Paper. (Tata hestoard of aptop computer.) and Fox: Weren't they the first in their industry to forge EDI links to supplieral Gekke: That's right, pal, but those burn the Street say the stock is a dog. (Taps more keys.) Hey, here we go. Reorga-nized their entire IS function in '87, put their CiO on the executive committee and piloted a just-in-time system for their

corrugated box division. This thing could be worth sfortune! (Lighth a riger)! any we bid 12 and let "on negion." For it has you will see the post arrive in the country in the your style. He can be considered to the country in the

Makes the world go round, pal.

Far-fetched? OK, sure. But if the TS Far-fetched? OK, sure. But if the IS function can gain the respect and value of the business maintream that most IS executives feel it deserves, it may someday have to withstand the same pressures as the motive traditional measures of asset value. And there's nothing wrong

Wither in Computerworld's senior editor, man

vestment formulas and the enigma of antifying the competitive advantage Chism Mackie CONTINUED FROM PAGE 49

ours? You come home late and you're tired," she says. At the same time, mplishments, she says. Chism Mackie is also proud of what she

as done at Transco, because she has been part of the massive systems the part of the massive systems changes, Slocum says the new systems are already affecting the way Transco carries out its business, and Chism Mackie gets a lot of the credit.

macae gets a lot of the creat.
"There were times when it was tough
— particularly struggling through the
last several years to not spend a lot of
money and to cut costs" as the oil and gas
industries faced depressed prices, Slocum says. "But we stayed with it, thanks to Su sie anever letting it let go.

See a never letting it set go.

Chism Mackie is still holding on and keeps looking to the future. "She is the visionary in the department — she sees things when other people are not grasp ing them," Haltom says.

In April, Transco acquired Texas Gas and added another 50% to its pipeline ca-pacities — from 3.1 billion cubic feet per

day to close to 4.8 billion. That will bring new challenges, Chism Mackie says, be-cause while Transco is an IBM shop, Tex-as Gas has a Digital Equipment Corp.

Vaxcluster environment. Chium Mackie lists com Chiem Mackie lists communication with her fellow workers as a top day-to-day priority. She claims the annual turn-over rate within Transco's 180-member systems group is only 5%. Another insportant aspect of Transco's compating environment is its centralized nature. Chiem Mackies says. "We have a lot of pressure to push control out into the hands of the operating people," the says, but her group has also been under erich and the control of the says. and do cost controls at the same time Centralization allows her to move emoyees where they are needed. However, the company operates its systems on a demand-driven environment, whereby the operating head of any area decides

much money is spent on systems. We don't have an executive steering nittee that sets priorities," she says. With 20 years to go in her career, Chism Mackie knows she does not want to spend them all in the systems area. "I on't see any doors closed," she says.

DOS. OS. or CICS Frustration? BIM gets it

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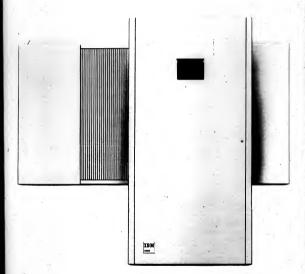
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JUNE 5, 1989

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An innovative combination of thermal, radar, laser, and video sensors may accurately identify military targets on the battlefield. The combination, successfully demonstrated by Hughes Aircraft Company in a joint venture with Texas Instruments, is called multi-sensor fusion. During operation, a computer combines digital terrain map information with data from a single package containing a thermal imager, radar system, laser rangefinder, and video camera to produce a "fused" target list. This process improves the probability of target identification and reduces the possibility of false identifications. The multiple sensor approach has applications in helicopter, fighter and tank operations.

Television programming will be available with picture quality similar to 35 millimeter motion picture film and sound quality similar to a compact disc. Hughes and North American Philips are working together to test a high definition television (HDTV) system for satellite delivery of HDTV to American

New primers help protect electronic circuits in neural prosthesis devices. The primers, plasma polymerized hydrocarbon films developed by Hughes, are used to bond biologically inert protective coatings to the devices for periods of over 10 years. The prosthesis devices help victims of neural

trauma, such as stroke, to regain some of their lost neural functions by electrically stimulating proper areas of the brain. Plasma polymerized films are also useful as protective coating in many other

and typically consumes less than 75 millowatts, and offers a stability of + 0.4 parts per million over the full military temperature range. The MCXO achieves its combination of stability and size by employing a microprocessor to digitally compensate the oscillator frequency over temperature. This digital

Hughes Research Laboratories seeks highly-qualified scientists for advanced research in physics, chemistry and electronics. Disciplines include: Information sciences and artificial intelligence, space asma sources; pulsed power switches; free electron lasers; electron beam testing; advanced IR

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applications such as infrared optics that are exposed to extreme conditions of sand and salt water. A small, low-power oscillator uses a microprocessor for improved temperature compensation. The Microprocessor-Controlled Crystal Oscillator (MCXO) developed by Hughes occupies 1.5 cubic inches,

compensation provides increased performance and stability compared to analog frequency

homes. Research will include a mobile HDTV Viewing Center to advance research of the new technology and conduct engineering and picture-quality rating tests. Two Direct Broadcast Satellites will be launched by Hughes in the early 1990s to beam a total of 32 channels of television programming

direct to one-foot home satellite antennas throughout the United States.

ence: Ansheim, Calif., June 11-16 - Con-tact: NPUG. P.O. Box 697, Laurel. Md.

tion Conference and Exhibition, Vi-ington, D.C., Jane 12-14 — Contact: Eng-A. Hender, Executive Director, NCITO, 5-

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COMPUTERWORLD

EXECUTIVE REPOR

WORK GROUP COMPUTING

Sounds good, but what does it really mean?

RY KATTE CRANE

a phrase in search of meaning. Try to talk bout it, and questions low questions.
'Tell me how you de and I'll tell you if we're de says Frank Gordon, programmer/analyst at the Texas State Board of Insurance

Gordon is hedging a bit. In truth, he is pretty certain that what his organization is doing es not fit any of the post definitions of work group con puting. The board is currently connecting a network of work stations to what he calls an "opti-cal jukebox" so that clerical workers can have immediate and simultaneous access to the optical equivalent of 300 square feet

But Gordon, who is the proect manager responsible for im-plementing the image processing system, says that if intentions count, then what his group is doing might qualify.
"We have insisted on a plat-

form that could easily he converted for interagency activity, he explains. That platform, he claims, is something that could truly be called be work group

as any other because no one is absolutely sure of what work group computing is. Is it, as one industry analyst calls it, "a industry analyst Calls II, "a swarm of buzzwords around the bright flower of an idea," or is it, as one vendor claims, "the dy-namic glue that holds groups of workers together, coordinating their efforts as they work toward

me common goal"? Scott Beck, vice-ore information systems at Health care Compare Corp. in Lombard, "We give individuals the do different things simultaneous ly," he says, but the organ never uses computers to h

Crane is a free-lance writ White River Innetion Vt.



nover'a Morse is working to tie the bank's applications around a common work group architecture

different sections (and some boil plates) then merging the com

mer out a consensus or as part of any committee process. "Is that work group computing?" he

asks.

If you happen to be using one
of today's broader definitions of
work group computing, it probably is. One of the broadest interpretations in simply this: users
with common interests an
needs sharing computer resources, Healthcare Computer
monthly medit that Computer
mo ponents to comply with each re-quest for proposal. In addition, the production, quality assur-ance, marketing and sales departments frequently collaborate on reports initiated by on more than meets that criterion. epartment and supplement The company operates a net-work with 37 file servers and "I guess you would say we sort of do [work group comput-

What kind of animal is groupware?

Why groups stick with plain E-mail

ality until local-area networks in Otis' Singapore and Paris offices are completed and the software for group interaction is boug the firm envisions internation

Mordo reports that install a LAN in the company's head quarters office was the first sten Now, Otis is planning to install some commercially available ne commercially available upware products. He says, owever, that the real potential of work group computing will not be realized until the Singapore and Paris LANs are on-line. Then," he predicts, ome exciting things.

It is somewhat symp of the concept's current state of development that business executives such as Mordo picture the asibilities of work group comexecutives responsible for exe-cuting the details.

The visionaries and the ver dors paint tantalizing scenarios of what work group computing to prepare proposals as a team. Last year, three people completcan provide. For example, they say, writers from several locaed 250 proposals by submitting tions around the globe can co-su-thor a paper by sipping files back and forth electronically. Engineers can use sophisticate

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Memorandum

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Alfred

Need to out Tucson on the network.

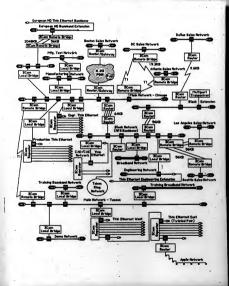
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AND SIMPLIFY IT.



EXECUTIVE REPORT

Sounds good

anover Bank in New York, says he pre-rs to put in his two cents "after the easners have made their speculative

To hear Morse tell it, Manufacturers mover is probably on the cutting edge th respect to work group mputing. The bank has

For nine years, nearly, ,000 of its employees have sen on a central electronic sail system. The firm also stes regional E-mail ic net

eate a large, dynamic netork system that will act a

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are information with another person.

The are trying to bail due entire archi
cture around this technology so we can

be a base of the system of the system

Is it happening? Yes, Morre says, but

a bases up on called or as easily as he

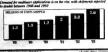
not always as quickly or as easily as he would like. "We work with the practical realties every day," he explains. "We're the ones who have to troubleshoot the

But Morse is not discouraged. "It's - not always the way we'd like, but it's an evolutionary process " he says.

One of the collaborative systems that he bank does have in place is a networked ose system for customer tracking database system for customer tracking and prospect development. That system is used by account officers and support personnel to coordinate sales and account service efforts and to make sure that all

are fully versed in a customer's fferent levels of people will call on

Users like company



eople in our customer organizations," Morse explains. "We have to coordinate se calls — make it clear who has been illing whom and what they have prom-ed." Having a system that can be dy-mically updated is imperative, he adds, cause if a bank officer meeting with a stomer does not have current data at "We're not beloing them.

fingertips, "We're not helping them." Although Morse has looked at a pernal information manager he thought ight function as groupware, be has not vet invested in any product. As it turned out, he says, the product he tried could not handle a large group on a network Like Morse, many IS managers who

have invested considerable time and effort in facilitating computer support of collaborative work have done so without the benefit of the class of products that are now springing up around the concept.

Most do make some use of E-mail, but
there is considerable debate whether Email qualifies as bona fide groupware. Groupware it should be understoo

a much newer and even less clearly defined concept than gro work. If people get mired finitional problems when coasing what work group computing is, they po ly bog down when talk turns to the software products that promise to support this

> At the core of the confu sion is the question of whether the label applies to any electronic tools that permit dynamic access or whether it requires that something be added to the that shared information

comehow be enhanced However, there is a much larger mat-ter at hand than groupware's definition. That is, how much will groupware add to or subtract from the already formids technical task IS managers face in trying to support work group computing?

Esther Dyson, editor and publisher at Ed-venture Holdings in New York, suggests that the "ideal [groupware] tool does all the work but gives the user total control Admitting that she has seen no such tool yet, she says the best groupware product will "handle the routine stuff and thereby free people to exercise individual initia-tive and flexibility." But, she asks, "How much flexibility must users trade for this

Ay, there's the power? Users, especially execu-

tives, are not willing to trade much flexibility. Consultant Phil Gilbert, founder
of Gilbert & Associates in Pacific Palisades, Calif., says groupware tools will work only if they make it easier to do group tasks quicker, bet- Sloom's Ma ter or more intuitively than curle before. "They won't work,"

he warns, "if you ask people to change their style." Virtually everyone, including devel ers and enthusiastic users, agrees that currently available groupware products

fall short of ideal flexibility.

So who will construct this fle The vendor? The users? The IS staff Lotus Development Corp.'s Irene Greif claims it is the vendor's job. For-merly with MIT's Office Automation Group and currently senior development manager of advanced technologies at Lo

tus, Greif oversees the development of a groupware product called Lotus Notes. Good defaults are the key to flexible pware products, she expl any software that hopes to be accep-should inherently include this capabilit

For example, multiple work groups may exist with the same people playing different roles in each group. Thus, in a co-authorship arrangement in which there are writers, editors, commenters and general readers, each group might

people in the group or modify the roles "That should be easy to do by changing defaults," Greif says, "not by having to

fine something new."
MIT Professor Thomas Malone says he thinks users can customize groupware products to their own liking, but only if products to their own name, det only in there are easy-to-use fourth-generation language and artificial intelligence com-ponents included. Malone heads a team at the Stoan School of Management that has developed a prototype groupware prod-uct that uses "little intelligent agents that act on your behalf." The user tells the intelligent agents to sort and prioritize in-coming mail, filter out unwanted mail or scan public information for items of inter-

J. Roger Moody, president and chief executive officer at Coordination Technology, Inc. (CTI), which is developing application-building groupware based on OS/2, says he does not believe that any vendor can write a groupware applica on. He argues that putting prepackaged wrapped groupware on the shell would reduce the complex needs of people rking in groups to the lowest common

IS managers trying to turn visions of work group computing into reality face much more challenging tasks than assem-bling the building blocks of groupware, however, Laurence Rosenberg, director of the Information Technology and Organizations Program at the National Science Foundation in Washington, D.C., has encouraged and funded a lot of research into the group dynamics that make or break groupware and group work. He says there is still much to be done, both in terms of technologies and in understanding how decisions are made.

Potential users and experts worry that ting group work can lead to the worst kind of committee results: exces sive caution and watered

That fear is not a proless at the University of Ari-zons in Tucson, which has ed its electronic meeting facilities several hundr times for such tasks as elecnic brainstorming, issues alysis, prioritization and

cision making. Doug Vogel, with others at the universi-ty, has developed more than a dozen soft-ware tools for use in the sophisticated

ware sous for use in the opphisticated planning and problem-solving sessions. Vogel, a researcher and professor of MIS at the university's College of Business and Public Adeministration, notes that the par-ticipants' experiences have been extremely and consistently productive.

"People are accomplishing in a half day
or less what would normally take a full day
or longer," he reports. Better still, he adds, is the "super group dynamics" that develops out of this environment. (See

story, page 74.)

But James Matheson, whose Menlo Park, Calif., consultancy, Strategic Decisions Group, has developed something called the Meeting Productivity System, is meeting Productivity System, is more wary of the consequences of group thinking, He claims it is easy for groups to be lively and interactive but much harder to get the group to make a rational decision along the way.

Mathematical Systems of the control of the

eson says he worries when he JUNE 5, 1989

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EXECUTIVE REPORT

hears comments like, "We made this big decision in only four hours," because he is concerned that, in some cases, the decision might have merited four months of

enon warms users not to let elec-Matheson warms users not to let elec-tronic tools become an excuse for not making informed decisions. When groups use work group competing to take a shortcut, he fears they could he doing more harm than good. "Don't sacrifice cision quality," he tells potential users. Like Matheson, Lawrence de Bivort, rector of the Evolutionary Services In-

ultancy based in Bethesda stitute, a consultancy based in Bethesda, Md., warms that much may be lost in the name of a good cause. If vendors create systems that look good but constrain people, he says, they may inhibit "the magic that comes when people interact with one another in an open environment." Fortunately, he adds. "People will sabotage

such systems."

John Seely Brown, vice-president of advanced research at Xerox's Palo Alto Research Center (PARC), refers to the quest for spontaneity in work group sys-tems as "the coffee not challenge."

For several years, his work has focused on exploring how small groups of people (which often assemble around office coffee pots) mingle their perspectives to construct a brand-new way of looking at things, Recently, he has begun to mus at things, Recently, he has begun to muse on how to capture informally — the creative swapping of information — when working electronically with colleagues located 1,000 miles away.

Toward that end, Brown and Mark Steffik, one of the visionaries behind PARC's famous Co-Lab project, have

written a paper exploring long-distance brainstorming, which they call "Portable

Ideas."

There is little question that work group computing in its ultimate form will create wast changes in the power structure and organizational charts of the companies in which it takes hold.

Ad-hocracies
MIT's Malone predicts that innovative or adaptive organizations, for example, will employ information technology for more employ information technology for more lateral networking to support decentral-ized and geographically shifting teams. He also suggests that there will be more ad hoc organizational structures, or "ad-hocracies," formed, which will require

Some pessimists say that the prospect of this kind of rampast information exchange will seem threatening to many IS executives. They predict that these executives. utives will resist work group computing as they did personal computers because they fear losing control with something so

In fact, that fear is not unfounded. Group work produces complex relation-ships among people, data and schedules — relationships that introduce a host of thorny questions relating to overall man-

thorny questions relating to overall magnetics, accoss control and security.

Lotus Great says she can imagine a soccasion in which use of ensuring the soccasion in which use of ensuring the products that that their varying a support of the social control of the s

he has encountered few IS inagers who are resisant to the idea of implenting work group com-

iting. John Moore, MIS dire tor at General Food Bak-ery Co. in Bayshore, N.Y., ent of work group comor, says he can emis

the fresh-baked uniness," he explains, we have to put the right



product in the right store on the right shelf on the right day," noting time in order

Although many are confused and un-that his company is much be ertain about their next step. Making says that because it uses Metapl rais of U.S. shelf and

> The reason that ma ganizations and IS man-ers are willing to suffer rough the confusion and ng the structure to ert work group computing is that they, like Moore, "want the right in-

ance. Like Gorson, necs are money, tor hesitates to call what his company does "work group computing." Many parts of the infrastructure are in place, he was "The company has installed the LAN says. The company has installed the LAN part of its strategic platform, has E-mail and electronic calendars in place and is moving to electronic information man-

All of that, however, is just the starti-point in the move toward work gro-computing, "We're just at the beg ning," he says, "Ask me the same qu

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Z C R

Drawing the groupware lines

BY I. C. KIMBROUGH

efining groupware is a snap. Just picture the body of a horse with an elephant's head, a lion's tail and an explaint's claus. In other words, it is an unmatched assortment of products being called the

same animal. That is partly bemative stages and partly because it is hard to get a consensus on what categories exist, if any, and how the lines between them are

Some experts are using a

broad brush to paint the groupware picture. For instance, John Seely Brown, vice-president of group work research at Xerox orp,'s Palo Alto Research Center, calls the facsimile machine a piece of groupware. "It gives ul-tra-high bandwidth communications." Brown says, "and is a highly efficient, low-overhead, collaborative tool

Julian Horwich, executive director of the Chicago Associa-tion for Microcomputing Professionals, agrees with the liberal tronic mail as a groupware tool but describes groupware as "a most anything we do on machines, which could include mainframes," Nevertheless, he says, "Groupware will be one of the bettest berrands in comnoting in the next few years.

Out of the gray Certain types of products do seem to register with everyone as a definite part of this gray area. One such category is document-editing or collaborative authoring tools, such as Broderhand Software's For Comment. which runs on IBM microcomputers, or Network Technologies International, Inc.'s Unix-

based Docuforum In the Apple Computer, Inc. Macintosh world, Mark-up from Mainstay or the soon-to-be-released Annotater from Farallon Commuting Inc offer document editing software. These prodacts let members of a group offer

LECTRONIC messaging systems that are several steps beyond E-mail in sophistication make up one of the most well-defined areas of groupware.

oninione about an article or report without tampering with the author's original vers

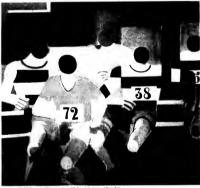
Form-centered or form man agement software for transaction processing is another possible division of groupware. For instance, groups responsible for approving loan applications can use products like Motorola, Inc.'s Life to electronically pass forms to the appropriate people as action is required.

Work group communication managers, electronic messaging systems that are several steps beyond E-mail in sophistication, make up one of the most well-defined areas of groupware. So far. there appear to be more contenders in this roughly bou category than any other. Deling on the specific program these products include such fea tures as teleconferencing or computer conferencing, calen-daring, scheduling and data man-Some of the products in this category are Office Works by

category are Office Works by Data Access Corp., Coordinator by Action Technologies, Inc., VAX Notes by Digital Equip-ment Corp. and Higgins by En-able Software, Inc. Lotus Devel-opment Corp.'s Notes, which is expected out by the end of 1989. lening the current concept of comment programs even furer, by incorporating aspects of formation management.

"One of the things people Continued on page 68

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Groupware CONTINUED FROM PAGE 64

worry about is having too much informa-tion," says Donna Simonides, product marketing manager for Notes. "I may send you 30 pieces of E-mail. Some may be more critical than others, and you need that preforitions them."

be more critical than others, and you nee help prioritizing them."

The hitch in selecting among commu-nication managers is that while then products have some similarities, they als have their differences. No two are enoug-alike to go head-to-head in the market place the way that Bortand International?
Quattro competes against Lotus' 1-2-3,
or Wordperfect Corp.'s Wordperfect vies
with Microsoft Corp.'s Microsoft Word. est decide which product meets

The same problem crops up in project tking/project management, and the general title of groupware. So Opper of Susanna Opper & Associ New York-based consultant speci

tween tracking and management. When a major engineering time uses numbraded of people to build a multimilliconditabilities, in media a complete procession angarement system. Opper says. When a setart-up company is developing a time for bringing its first product to market, it needs a project tracker. Opper asys, Project management is for the big goys, and project tracking its for the filte goys, only project tracking its for the filter goys, and project tracking its for the filter goys.

another category of emerging software, team development programs, which deal with the process of group work rather in the process or group with Tation in the content. She points to programs der development that are being de-med to help managers create groups, abyze the group's needs and behavior and give managers pertinent data they can feed back to the group.

can feed back to the group.
"In the next evolution, this kind of software will be available to groups to belp themselves," she predicts. "When computers begin to become part of the group and perform a function for the group, it's exciting. Calendaring, even if you can figure out how to do it, is not exciting. It saves the secretary some time,

no programs ately, groups will probably ne-ref the various pt me combination of the various pro-ums to get the job done. Because the

grams to get the job done, itseause the concept of groupware is still evolving, what looks like individual categories prob-ably will not stay that way.

"If anything, the categories are going to blur," says Professor Thomas Malons of MIT's Sloan School of Management.

or will a smeal School of Management.
"Eventually, groupware will include all
categories." Malone and his teammates
at MIT are working on Information Lens,
a way of using artificial intelligence to
manage information sharing, and on Obfact Lens a preparation of the control manage information sharing, and on Object Lens, a general-purpose umbrells for cooperative work and information management. Malone predicts commercial products based on their research will be on the market in two to three years, may-

on the market in two to three years, ..., be even sooner.

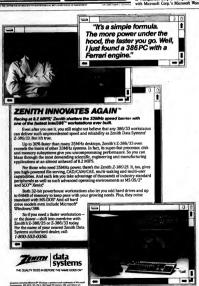
Meanwhile, software developers are already realizing a bigger iceberg is under all the seemingly separate tips.

A recent announcement from IBM and Metaphor Computer Systems, Inc. means Metaphor's information-sharing and deci-

Metaphor's information-tharing and denine-support advance will now run on high-end BBM Personal System/Za, Personal Computer XII and AT's instanced only on Metaphor workstations.

By March 1990, Coordination Technology, i.e., will probably differ an asystematic properties of the company President Roper Month of the Computer of the C

work development environment."
If the implications of all of these programs are difficult to grasp right now, it may be because they are dealing with concepts so sbetract they border on the metaphysical. It is easier to describe them in terms of the known things that they are to than the undersiliest things that they are. Experiencing them may be the only way to make them concrete. •



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US West shrinks the distance

BY IANET FIDERIO

sility at US West, the Denver-based, nal holding company. US West has 0 employees in a 14-state area, and

ing to Steve Dickson, inform roes analyst at US West's Info

ition as well as va as transport mechanisms to move m ages and files among various system his means that if one isolated membe ms to move mesa meant that it one isotates member of a work group uses a Wang system, he can still communicate electronically with the other members of his work group using a DEC, IBM or any other US West system.

leing shie to exchange files electron

cally has stimulated collaboration, Dick-son says. So have amenities such as the on agrs. So have amenities such as the light yo post agendas and transmit work-of documents for conference-call meet-er, "It often happens with conference is that somebody will be on-line, but you're have the documents being di-sead," he notes. "If you can rush them ret Message Net, rather than have them soci, it's a steph in the right direction." The company's 2,000 IBM FC ampetible, system users can sugment megatible, writen users can sugment to the properties of the properties of the megatible.

spatible system users can augu-ssage Net's services with a com-groupware product called Hig n Enable Software, Inc. Higs ch can operate on US Went's 200 which can operate on UN West's 200 No-well, Inc. networks, is currently used by about 1,100 employees, Dickson reports. In addition to electronic mail and docu-ment management, Higgiess provides docu-ment management, group neheduling, the ability to create shareable work group files and bells and whintles such as elec-tronic clocks, to-do first and appointment

one or riggins intre important variety. Dickson says. If a work group member knows an-other member's public password, then hat person is entitled to see their public

YSTEMS SUCH as Message Net can help level the playing field for employees far from their manager or the center of action

entries, whether it is mail, files, logs or di-rectory information. "But if something is flagged 'private," he explains, "it' a private." When either public or private in-formation is read by another person, Hig-

formation is read by another person, Hig-gins notifies the home system. Dickson, whose work group uses Hig-gins, finds it useful to overlay and com-pare the schedules of work group menbers. "It's very convenient for work groups to be able to [check schedules quickly]," he says. "In our type of support organization, we have a lot of project

organization, we have a lot of project meetings, and people are not always at their deal. It's easy to find out where po-ple are if they keep their electron-pointment calendar up-to-date." Because Higgins operates as a node on the larger Message Net System, it is pos-sible to send messages and document seamlessly from Higgins to one of the other croffice automation systems. Having a system like Message Net as the foundation of its work group commu-

diminishing returns. As you add peop you get more and more



INTERVIEW

Getting a picture of the group

When you talk to companies pursuing work group computing, a puzzling fact emerges. While electronic mail is a popular tool, other groupware products are seldom being used.

hristine Bullen is no stranger to electronic collaboration — she lives in Hastings on works in Cambridge, Miss., as the assistant director of the Cornection of the Cornection (CISE) at MITS. Sions School of Missagement. In fact, for her latest project — an investigation of how work groups make use of electronic tools — Bullen collaborated with West

tigation of how work groups we make use of electronic tools— We Ballen collaborated with Wes Co. We will be seen to be se

kinds of groupware tools are barely used.

Bullen is not ready to write off the category. But, after following several groupware products for as long as three years, she has not been able to find evidence that their use has resulted in any significant changes in the way people work together.

Bullen spoke recently with

Bullen spoke recently with free-lance writer Katie Crane about her current research and shared some preliminary observations.

Is your current research an attempt to document how groups use groupware tools in the real world? Yes, but perhaps even more important, it is an attempt to se-

portant, it is an attempt to asswer some basic questions. We've completed case studies in 11 companies (including 25 sites and more than 100 interviewa) to find out how groups work together, what the most important factors are in that work, what electronic tools they use and, of those tools, which are useful and

What have you found out about group work?
One of the most interesting questions is, what is a group? A "group" used to be defined as an organizational entity, a department, for example. But now, with electronic links, the defini-

and go quickly, and they cross departments and locations. For most large companies today, the boundaries and sizes of different groups vary and sometimes go beyond the company to include customers, suppliers, industry groups, even competitors.

Every organization you studied had access to electreate groupware tools. Which are they using? One of the most interesting things we found is that people aren't always using these tools. The fact that the functionality

are unique. During this past year, we looked at firms that unequite a range of tool types are looked at firms that unequite a range of tool types are looked at firms that unique the large viewers like Digital Digital Digital Control of the large viewers like Digital Digital Control of the large viewers like [En-side Software, Inc. 4] Higgins and [Action Technologies, Inc. 16] Mortaphot, which is marketed as in other product but my have more general application, and [Plocothermals Software]. For

for group writing projects.

In addition, we studied a variety of what I call "administrative" products that offer such things as E-mail, computer conferencing, filing, address books and expense tracking and sometimes even spreadshoets. In reality, people are barely exploiting the functionality of these tools with the exception of E-mail.

Con you say why E-mell Is so popular? Communications is where the easy value is. Even for the products with swkward interfaces and there are some— the com-

most popular.
We still don't know whether
that means communications ir
really all that's necessary for
groups to interact and work together and other funtionalities
are merely icing on the cake. It
may also be that sending mesages back and forth electronically is so similar to the way
we've always sent messages that

Are people merely indifferent to groupware products, or are there things about them that they don't like?

b Mac?
b Mac?
b My preliminary observation is that most grossware tools sin-ply are not living up to the vendor's hype or the user's expectation. Again, that raises acceptagestions. I'm not sure, for instruce, whether the problems are mostly related to function or

ease of use.

Electronic calendars are a ch
good example. Not many people tw
like them. What we don't know is Sid

Christine Bullen

why. It may be that people don't really feel they need an electronic means for keeping track of dates, or it may just be a matter of design. We write notes to ourselves, pict own telephone manbers, put colors on certain days to highlight them and draw arrows to link things. Furthermore, we like to be so week or a month at a glance. Most electronic calendars don't offer all of

Can you think of other reasons why people wouldn't be using electronic groupware tools?

A there possessery is that some tools simply require too much training to be useful. Vendors aren't reality picking up on that, and the organisations don't think of doing it themselves. As a result, the users despuir and disrement the tool. This assemble to the contract to the contract to be. another case of the techies saying, "Here's a new technology that will fix things," without providing the training and support necessary to make it work.

Doesn't successful implementation class depend on how the tool is introduced? Abecatety. For example, one company we researched had been using the identical in-house system at two different sites for more than five years. Quit of the control of the money class of the control of the control of the control of the money control of the co

it had been introduced an augmiscant new tool. At Site B, it had been brought in as an experiment. Today, it is an important tool that people rely on at Site A, while it is seen as an informal kind of thing, like a toy, at Site B.

This proves environmental cues are important. Too many product developers and managers expect users to see how great a product is and use it. In reality, if someone doesn't like it or doesn't the it, that message gets passed along.

o you have any ther preliminary bservations from our research?

Yes, once Users are crying for integration of these tools. For example, For Comment is a popular tool, but users complain that it is still an isolated tool. That may change [if the rumor is true that Microsoft Word may incorporate For Comment].

much larger problem. How easy is it to integrate these groupware tools with other electronic tools? You want it to be easy. Rather than buying new word

to the common to

Coordinated information brings meetings to order

BY DOUGLAS VOGEL

DI LAUULLAS VÜÜEL

We can't keep meeting this way, if we hope to keep up in today's business climate. Everyone complision that meetings are up to mech time, but that is really the least of the problems. A less frequently mentioned but more permicions characteristic of meetings is the way in which they serve to dibate information.

Consider what occurs before and during a tyrical business meeting:

First, we gather information that ight be relevant and format it in some might be relevant and format it in some upper officession purposes. We take it into the meeting, along with whatever facts we can hold in our minds, leaving in our offices a vast array of potentially relevant information. In the meeting, we essemble our facts and try to intigrate them into a composite, directed picture. At the end, staff members compile a final report that, because it is a summary treatment.

There is at least one means for improv-ing this disjointed and leaky process — using computers to support the cooperative work of meetings.

New try this.

To get an idea of how this could work, imagine the following: You go into your meeting having thought about the topic but without any paperwork. Relevant data is available in the room through a variety of access channels and modia drawing from sources such as on-line databases

ing from sources such as on-line distances and electronically acanned text. Some meeting participants are actual-ly in the room; others are in similarly equipped facilities at other sites. You can share information electronically and con-verse face-to-face, drawing on pertinent

As the meeting progresses, an elec-tronic picture of the relationships among the information takes shape and, on the is of that picture, the group moves toward agreement. At the end, each person is handed a "layered" management re-

is handed a supered management re-port showing the stages of data build-up that led to the decision.

This meeting will continue to exist in This needing will continue to crisis in electronic form, arisable to this group as well as to others working in related areas. Access to the "needing investing access the continue to the content bending access the continue to the content bending access the content bending access the content of the content

n is stored. I this involves networked ac-cess in conjunction with corporate IS poli-cy and standards.

• An easy browning and retrieval sys-tem to incorporate relevant data in group deliberations. The system can be semistic-based with sufficient intellie to support the needs of non-tech

cal executives.

The ability to tap the knowledge of experts for extra information without leaving the room. This can be accorded to the control of the cont saving the room. Instean be accord-pished through access to previously or-genized or dynamic information. It may involve electronically trying that person into the group's deliberations.

into the group's deliberations.

• Incorporation of data by any group member at any stage of the process. Structured view access ports to the data allow meaningful traversal of the information. Once information is located, it can be brought into the current session. This re-

brought into the current session. This requires electronic meeting system software that allows integrated levels of both individual and group support.

• Meaningful organization and presentation of eason information. This requires "hypermedia" software, which permits organization of the data without injury to the relationships and meanings attached to it. It also requires graphics statched to it. It also requires graphics

manipulation capabilities and large-screen presentation hardware.

• Summarisation and tailored re-porting of session information as well as storing data for later access. This re-quires attention to procedures for orga-nizing information as well as flexible softare report generators that can be easily

requirements.

Systems and procedures to ensure that security and data credibility is sustained. Failure to effectively manage sensitive data undermines any chance for a

sitive data undermined my chance for a successful application.

This kind of efficiency does not come without a price, but neither does our cur-rent method of managing data in support of group decision making. Computer sup-port of the meeting process presents tre-

endous opportunities. As the pace of business and the ter competition heats up in the next few years, there are likely to be more in-stances in which meetings demand the participation of personnel in remote loca-

It's been fashionable to change languages when you develop for the personal computer. This turns experienced programmers into beginners, and adds a small step called "rewrite the whole system" to each development project. The effect on budget, schedules, standards and staff is painful-and unnecessary.

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IN DEPTH

CD-ROM enters mainstream IS

Try in-house publishing as initial application for maturing technology

BY DOUG ILES

hem compact disk/read-only men
yy (CD-ROM) technology made
official U.S. debut at the Natio
Computer Conference in 1985, it is
tonted as an industry breaktrow
— a revolutionary technology. It
most new technology. It
most new technology, it was imme
seely andded with extremely high or
pectations.

synchronic particle of the company technology
pectations.

starting to meet some of that early acclaim. For example, Lotus Development Corp. has placed financial information on CD-ROM. Microsoft Corp. offers various reference manuals as a CD-ROM product, and Dialog Information Services, lic. has mirated several of its on-line

In each of the above-mentioned cases, the application of CD-ROM has resulted in a commercial product that is intended to generate revenues. But should information sys-

Yes, water Co-Robin products garater the sendines, there is a groundwell of CD-ROM activity behind the scenes at Formal 1,000 companies and government agencies. These organisations are starting to turn to CD-ROM as a strategic information management tool. They are using the technology as a means to manage and distribute large amounts of internal information that is critical to their business.

Driving CD-ROM use Ford Motor Co. is one example of a corporation that depends on CD-ROM as an information management tool. Its New Holland, Pasubsidiary — an agriculture and construction distinct properfection agriculture.

at Hewlett-Packard Co. in Mountain View, Calif.

he North American segment of its work vide network of dealers.

Ford dealers were looking for a buy to utilize their in-house computer ms for ordering parts without relyin em minimum or printed manuals at the ary sources of detailed parts informs force the availability of the CD-ROM technology ena modem. CD-ROM technology ena

Ford New Holland, Inc. to provide its des with more efficient and cost-effective so to pricing and related information on n then 200 000 nexts.

than 300,000 persa.

Cummins Engine Company, Inc., a die engine manufacturer based in Columb Ind., is another company that has went CD-ROM technology into its informat management scheme. The company lplaced its master price book — 60,0 enges of tert and graphics — cont.CD-ROM.

placed its master price book — 60.00 pages of text and graphics — onto CD-RO For the Cummins field people who repair e gines, a pilot program providing CD-RO readers on wheels offers a more efficient we to search the master price book for independent than stairs are some conficient of the price of the p

mation than using paper or microfilm.

The company left that the amount or graphics involved made the information impractical for a mainframe computer because such an approach would require converting approximation.

would require converting approximately 8,500 mainframe terminals to graphics-based ones.

An example of a government

agency using CD-ROM technolog for internal functions is the Minneuot Department of Education. The depart ment was seeking a way to distribute database of more than 100,000 too questions for its State Assessment Program for students. The database, known a an item bank, was originally developed on

an item bank, was originally developed on a mainframe computer and used for creating tests to measure students on specific subjects throughout the state's achool districts. Results from the State Assessment Program help the department determine the effect tiveness of its curriculum. Unforcussitely, the department experi

enced dial-up problems with the system. Put ting the database on CD-ROM enabled the department to send the information to users in a form that could be accessed through a standard personal computer and CD-ROM drives.

Many organizations that have successfully used CD-ROM as an information management tool have come to understand that



THEFT

Dispersing critical information companywide
 Not just a mass storage device

· Positioned as a supplement to paper



How will UNIX*SystemVaffect your customer base?

As we celebrate 20 years of development, the UNIX system has become recognized as the united by the standard in operating systems around the world. UNIX System V is the taproot of an ever-growing customer late one than includes every project vendor committed to open systems, and even some who

are not.

No matter what your computing needs are,
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This unique capacity of the UNIX system to satisfy a
range of users has made it a catalyst of the open

systems' movement.

Market acceptance of the UNIX system, which comes first licensed by AT&T 15 years ago, has been overwhelming. As a result, AT&T created

the UNIX Software Operation as a separate business unit to serve all users of UNIX System Vbased products.

It's the latest milestone in the UNIX System V heritage of responding to the marketplace and ous-tomer needs. Key product enhancements are also evidence. Releases 3.0 and 3.1 delivered networking and internationalization. Release 3.2 was built around these enhancements and included XENIX/386 compatibility and security features.

The UNIX system's inherent capacity for upward migration assures that ongoing technology of UNIX System V Release 4.0 will be available to all

our customers—current and future With every enhancement, the UNIX Software Operation will continue to keep UNIX System V portable, compatible, interoperable, scalable, and sandard compliant. All of which will be achieved only through accountability to each and every costomer who needs the growth potential of an open

systems' environment.
To find out more about the UNIX Software
Operation and licensing source code for UNIX

Operation and licensing source code for UNIX System V, call 1 800 828-UNIX.



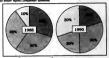
CD-ROM is not just another mass storage device that can work on a personal com-puter. The technology's val-ue lies in the fact that the physical disks can be replicated accurately at a rela-tively low cost. In this light, CD-ROM is a prime candi-date as a distribution media

tor pubmishing electronic dista companywide. CD-ROM is an enabling technology, encouraging IS to focus on information missagement technologies. Thus, the publishing of elec-tronic information becomes, fect, a means to better

age information. Before advent of CD-ROM, re was no cost-effective way to bring M bytes worth of informat ntoaPC. 600M bytes worth of information to a PC. It is worth pointing out that just be-ause a CD-ROM can boid 600M bytes of lata does not mean that a CD-ROM appli-ation requires that much information to nake it worthwhile. A CD-ROM that holds as little as 10M bytes may be cost-fication in a clause moliform.

holds as little as 10M bytes may be cost-effective in a given application.
Regardless of the amount of informa-tion planed on a CD-ROM, an organisa-tion 183 department can realize some fun-damental advantages by such a understaking. The following benefits, four-ment's information management charter: a Improves accessibility to vital in-formation. Making information avail-

CD-ROM information products by market shu By next year, the percentages will shift to more full-text information By next year, the perces



Abstracts Reference data

able over a network is not the best as-swer, because the cost of magnetic storage is too high. As a result, organisa-tions carefully select what data resides on network servers. On the distribution side, network servers. On the distribution side, nine-track tape is the media of choice for large amounts of information. Unfortu-nately, examining information on a nine-track tape usually requires large system resources. This factor alone handicaps

e data.

Increases the productivity of the disser through electronic search entures that accompany the information. Organizations are generating sere and more information, but this increasion is not necessarily of higher slity. That is why it is so important to

have the tools to process this data.

ta into a m

large document on a reg basis, even if the docu-changes. As a result, on mice typically send out p updates that are supp be inserted into the main document. The initial thrust of CD-ROM sh

refore, the en n of paper wil

A starting point Every large organ sive amount of pul

os in the form of duct catalogs, docu-nent reports, market

research and so on. The vol type of information makes in

per with ASCII code will be res at is why CD-ROM should be ed as a supple

r management is al-ing a CD-ROM-base rement, program. N estrustra revenue generators, sizu un lars into revenue generators, sizu un rate publishing groups are cost con This barrier can be overcome by al-management CD-ROM's ber-

Dealing With Computer Systems Security In The Information Age

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ical) hing Technological Resources (Dirvid Servens, Mgr., Computer rection Program, Lawrence Berlicky Labs) rds & Security in the Future (Stephen Walter, Pres., Trusted Infor

Systems)

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a prototype disk.

r than producing a life-cification, a servy IS can create a prototype pe builds a bridge to the we mens of a CD-ROM

"In just three weeks.

Deck generated over 300 leads - and many

were from buyers whose

leads quickly translated

our card in Computerworld's Card

into sales"

partment that has served as a beta-test site for a hardware or software vendor. Instead, IS is placing a product in the hands of cing a product in the hands of ers for feedback on the appli-tion. Not only does this assist the product development cycle, but it hopefully generates posi-tive feedback for winning senior

ment approval. anagement approvas.

The development of a protomedices not require a major intype de

vestment. Some service bureaus are ideal for handling the CD-ROM data preparation process on a onetime basis. In addition, off-the-shelf CD-ROM developoff-the-shelf CD-ROM develop-ment tools — retrieval software and user interfaces — are avail-able that minimize up-front costs and reduce development time. The following is a breakdown of

the approximate costs required to create a CD-ROM prototype:

 Internal data preparation (staff time) — \$40,000.
 Outside data preparation (service bureau) — \$30,000. vice bureau) — \$30,000.

• Retrieval software and user interface — \$2,500.

• CD-ROM mastering process

-\$3.500. a Six disks -- \$500 · APPROXIMATE

COST: \$76.500

TOTAL.

If the CD-ROM-bound infor mation already resides in a struc-tured, electronic form, this will uce the cost associa internal data preparation.

Aside from the costs, several management issues arise when considering proper tactics for ting a successful CD-ROM The

ment organizationwide stan-dards early in the process. The most effective CD-ROM publish-

ing environments are automat-cit, and automation can only be achieved through standards. On a global level, think of the CD-ROM publishing environ-ment as a conventional manufac-turing environment with infor-mation as the raw material. Toward this ead, the economic-rate of manufacturing pupy to CD-ROM publishing, which means that the reduction of bloot costs will significantly reduce enversil costs. ing environments are as

In any large corporation or overnment agency, informa-ion originates in different file

EYOND gaining senior man-agement's approval, a prototype builds a bridge to the prospective users of a CD-ROM service.

formats, ranging from main-frame databases to ASCII code to word processing files. In addi-tion, the information is stored on several types of physical media including paper, floppy disks, magnetic tapes and tape car-

tridges.
With such a buge volume of dissimilar information, the largest and most time-consuming task in the CD-ROM pu task in the CIP-ROM publishing process involves the data prepa-ration. A common input format is required to impose a consistent representation upon the differ-ent types of documents or infor-

The best way to ensure a consistent document structure is to embrace a standard page format throughout the organization, such as the Standardinad Generalised Markoy Language, By taking this approach, a large portion of the data can be sustomatically processed into the proper physical and legical formats for CD-ROM structure. The surface of the contract of legical formats for CD-ROM structure of the contract of legical structure of the contract fields both the printing and the CD-ROM publishing processes.

Converting information into the selected page format is ac-complished in one of three ways:

"We can belp manage technologi-cal change." That's the charter of Technology Solutions, Inc., a mar-leter of PC products in Herndon, VA. According to Vice President Gary Stevens, Script Writer, the Electronic Clipboard, can belp us-ers do just that.

A portable piece of forms-process-ing hardware, Script Writer actual-ly reads hand entries, storing data

for electronic transfer to a main-frame, minicomputer, or PC. By eliminating hand keying, Script-Writer offers faster, more accu-rate data entry and substantial cost savings. And with this new tool' a virtually endless applications for data collection, Gary was faced with finding a way to promote to

key buyers. key buyers.

"First we looked at ways to build product awareness and generate leads. We chose card deck adversing. Based on our experience, card decks are a good response whice because they're quick to look through and easy to use.

"Then we chose Computerworld Response Card Deck. I've sub-scribed to Computerworld for

many years and I've always considered it to be the newspaper that hits high-level MIS/DP peopl—those who buy. Unlike PC books which are focused on gadgets for PCs only. Computersori covers and reaches the whole MIS/DP industry.

"We were very pleased — and, admittedly, even a little surprised — with our success rate. But the message is clear. And, in the future when we're looking at dollars for advertising, our first dollars will definitely go to Computerson'd Response Card Decks."

world Response Card Decks."

Computersord Response Card Decks give you a cont-effective way to reach a powerful buying audience of over 127,000 computer professionals. They're working for Technology Solutions, Inc.—and they can work for you. Call Norma Tamburriso. Account Manager, Computersorid Response Card Decks at (201)867—1350 to reserve your space today.



COMPUTERWORLD RESPONSE CARD DECKS

cal character recognition soft re and hardware, converting

Once the information structure has been consistently repreture has been consistently repre-sented, the next step is to index and organize the database in a fashion suitable for CD-ROM. There are document formatting e that tra noies structure of the tagged et format (DVD, Next, the program output is turned into ASCII code with a DVI-to-ASCII

At this point, the data in the ASCII files is keyworded and in-dexed for the retrieval engine software. Typically, this soft-ware is capable of searching the index files and locating docuents by any named topic. It so provides a specification for the proper indexing of the ASCII files and serves as a tool for building the database. Naturally, the retrieval engine operates in

the retrieval engine operates in andem with the user interface. Again, standards come into play during the indexing process. The logical layout of ASCII files associated with the CD-ROM should conform to the ISO 9660 file formst, or the High Sierra Group Proposal, which defines the structure for CD-ROM data

files.

ISO 9660 has been accepted by the CD-ROM industry as the standard for volume and file structure of data on compact disk. It is a nonproprietary, read-only structure that ensures that all disks can be read on virtually any combination of drives and computers. This format is a treestructured approach similar to MS-DOS and Unix with a volume descriptor containing pointers to two directory tables — a root dictory table and a two-level noth table

is it live or is it simulated?
After indexing and organizing the data, the data should be tested. This can be accomplished by a "test disk" — generated by a CD-ROM mustering facility — or by simulating the data as if it were a pressed disk. Test disks tion process — getting a test disk made is essentially the same as getting a "live" master done. sently, most CD-ROM

By taking this sim roach, you can test the disk lay-ut for optimal performance. When the optimal performance for the CD-ROM application has been achieved, the data is outtted to nine-track tapes, ready CD-ROM mastering by the

ring — up to and CD-ROM pre

ormat, simulate the data and stout it to a nine-track tape. Is ion to premastering sys tems, it makes sense to explore available CD-ROM production technology wherever possib swiid reinventing the wheel. By leveraging existing soft are products and expertise the

f roses with the imple on of CD-ROM techni ogy. One pos ervative IS or me still view CD-ROM as

emerging technology, and mind-set can be an obstacle.

CD-ROM, there's little nd data, there can be no no made. To make a ch

cern. The industry is st working out the data encryptic issues surrounding CD-ROM

For the most part, the tech nology is ready, its use in an in house publishing capacity coul-be just the ticket for an IS orga



Speed causts. Speed in implementation and speed in operation. Simply put. Getting at and quickly manipulating large amounts of rapidly changing information makes it easier to ace the competition.

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user query and report writer ca-pable of transparpable of transpar-ently accessing and merging data from multiple databases. SORTOM — the industry's first complete develop-ment package for custom-ized LU 6.2 connectivity in distributed and cooperative dard for epool and performance MODEL 204. Version 2, forms th

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*Audit Bureau of Circulations Supplemental Data Report, May 25, 1987

COMPUTER INDUSTRY

INSIGHT

Scot K. Sedlacek

Hostile takes over?



nt in an attempt to restore areholder value. Boon or se, however, the hostile takeover has been a rare occurover his been a rare occur-rence in the information technol-ogy industry — until now. Is the rare occurrence about to be-come an accepted industry

Sun founder guns for the big leagues

INPERSON If Sun Microsystems, Inc. Presi-dent Scott McNealy was a pitch-er in the big leagues, his weapon of choice would be a fastball:

Since co-founding Sun in 1982, the 34-year-old McNealy has nurtured an evolving series of powerful desktop machines that often set the standard in the

that often see the standard is the overletzion nature. In most who looks more then the restoration particular to the control particular to the control particular the standard of a Nature of the control particular the standard of a Nature of the control particular the control



end computers that compete against Sun. This is not a ques-tion of Toshiba vs. Sun, it's a question of Sparc vs. VAX/VMS or Sparc vs. Mac OS. Toshiba is system, there is no way we have a chance of selling add-on computers. But if they make someone a Sparc/Unix/Open Look shop, I can walk in and say I'm 100th comparable with the

now and worry competition later? Sure. The Sparc/Ur Look world is potentia

ning three times faster at one-fourth the price of Intel, and Unix having thousands more ap-

BY NELL MARGOLIS

BUFFALO, N.Y. - Com BUFFALO, N.Y. — Computer Task Group, Inc.'s (CTG) cof-fers looked s bit greener and its customer base s bit Bluer last week as IBM announced plans to pay \$21 million for a 15.3% ske in the 4,000-person pro-

size in the 4,000-person psiconal services firm.

CTG Chairman and Chief Extirve Officer David Campbell ided the move as a synergistic street of the services one that will speed new to gies to both companies' cus-omer sites. IBM currently conacts with CTG to the tune of proximately 5% of the smaller

suprovismately 5% of the number company arevenue.
Prodestial Bache sneere.
But and CTG contains at least an element of defensive trateary.
Priving seen, for instance,
Arving seen, for instance,
Prodestial Sneere sneere,
prodestial sneere,
prodes

CTG investment sustains IBM trend

cent purchase on the open mar-ket of approximately 9% of CTG's stock by Volmac, a com-pany based in the Netherlands, "was not entirely welcomed by CTG — or, at least, as you can infer from the fact that they put in a shareholder rights program soon after it happened," be not-

Proper chase
Last week's announcement followed IBM's \$10.1 million purchase of a 5% equity interest in
Atlanta-based IBM Systems Application Architecture developer

and that any attempt to read sig-mificance into the company's ap-pearing to be on a shopping spree would be misplaced. The CTG buy is "one more in a line of

also representative of 10M a tendency to reward loyalty. As with MSA, investing in CTG "is their way of backing companies that have backed them for years," said Robert Therrien, an

Kuehler now IBM president

BY ROBERT MORAN

Jack Kuehler, former vice-chairman of the board of IBM, has been elected president of the company. The move puts the 56-year-old Kuehler in one of three posts most recently held by IBM Chairman and Chief Executive Officer John Akera.

IN BRIEF

Danish, anyone?

p gambling
Pacific Stock Exchange as
ood last week that it will beging direct random-access men res contracts during the

Add 'em up

to pick up the IEEE Corne ion Recognition aware at to HP for the H

Newton Minow

ed to a U.S.

Sun founder

CONTINUED FROM PAGE 81 do Unix in a big way. That wasn't what

At the Software Publishing Association conference recently, [Lotus President] lim Manzi said he would support all three instruction sets from Sun: 386I, Sun-3

nt wan rounte was an analous in a ma-ual computer software vendors in a ma-way. Developers are still a little por way. Developers are still s little nervous about writing software on top of an operating system that is controlled mo-nopolistically by their major competitor — Microsott. Nobody believes AT&T will dominate the PC software applica-tions business like Bill Gates does.

What affect will the Hewlett-Packard/Apollo deal have on the workstation market and Sun in

None. The HP and Apollo lines existed be-fore the merger and will exist after. But both companies now face many internal

neus oo mey caooser wanch operating sys-tems do they go with? Which windows genvironment? Which graphics libraries? What do they do with the extra manage-ment and sales force? Mergers are not easy, and they will be a long time resolv-

Computeriond? It's in the retail industry's best interest to get the world to believe the only way to distribute in volume is through them. But the retail outlets take their overhead and don't necessarily have the single vendor's



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motivation in mind. Plus, they don't un-derstand the Sun product line as well as a Sun sales rep. They have to know a little

Right now, our value-added resellers are very effective in selling to small busi-nesses while direct sales sells to large cor-porations. Next would have you believe porations. Next would have you believe that the retail stores are the only way to sell volume. Ask a company like Du Poet: "Do you want to buy direct or indirect?" They'll tell you that when they're buying 30,000 workstations, they want to buy di-

Sun has fallen out of favor on Wall Street lately. Any opinion? We've never been in favor on Wall Street.

arter as we're making massive invest-ents in all parts of our company to get ments in all parts of our company to get set up for the 1990. We've get to grow this thing sed do a lot of things much fast-er than we'd like to be doing. "Mil Street doesn't see this opportunity five years out. They get paid every third manonco-ond. They don't know how to deal with a company that's taking as big a swipe at the computer inshatty as we are

In there e possibility of Sun acquir-ing or merging with another firm? For the right price, Sun can be bought. For \$100 a share — cash, right now — McDonald'a can merge with us. There inn't any public company with a board of directors that is all awake that would say

Start-up company makes passage from India with Unix

BY JEAN S. BOZMAN

What's big, has three letters in its trade marked name and dominates the compu

marked name and dominates the computer industry in its native land?
Try HCL Ltd., one of India's largest computer firms, which recently popped up in Silicon Valley to test the U.S. computer marketplace. HCL stands for Hindustan Computers Ltd. When IBM temporarily pulled out of India in the 1990s.

when Wedn.

The \$150 million concern — I Unit vendor since the late 1970 — started in private by raised shareholder funds. The prismay source of these funds is a group of \$5 India no businessmen, although some share will be noted to the public.

The business plate began to that shape carrier this year, with a staff of 20 — anseveral thouland square feet of restate packer in a Sunoyyake, Calif., industrie

park.

HCL America plans to use the lanodge of HCL's 3,500 Indian employ
and Univ expertise as swedge into
hoty consteated U.S. Univ market.

"That experience [with Unix] is or
ing to me at one-eitht the [labor of
U.S. oxporation has," Vaidhas sind.
veraging HCL's Indian investment,
said, will allow the U.S. company to en

CL AMERICA plans to use the knowledge of HCL's 3,500 Indian employees and Unix expertise as a wedge into the hotly contested U.S. Unix market.

the market with prices that could be as low as between \$35,000 and \$45,000 for aone or two-processor system. The small start-up's sim is to sell its Unin-driven file servers to the U.S. feder-al government, various vertical markets and the telecommunications industry. The HCL M3000 series is based on Mo-

The HCL MS000 series is based on Microla, Inc.'s 80000 processor and on AT&T's Usic Systems V, Release 3.

"The advantage we have is that our current Usic systems has been tested in a current Usic systems has been tested in a current Usic systems has been tested on the contract of the

ing users its collective experience with commercial Unix.

"Our expertise lies in tying all the ele-getting more performance out of a Unix system than anyone clae. We are an Indi-an company, and we're very proud of it. But the manufacturing and support of these machines will be here in Sunsyste, Calif. HCL America, Inc. is an American composer, "In

The least a local area network can give you is time for lunch.

Some food for thought. Getting all the information from

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tion run more smoothly and productively. And that means you can devote your time to other important matters. Bon appétit.

Sedlacek

CONTINUED FROM PAGE 81

Hostile takeovers have long been viewed as taboo in information technol-ogy for two basic reasons: It was felt that people were the princi-tal same of an information technol. met of an information technology sany. A mass enodus of the target's valuable asset

earch and development expenditures tinue to rise, and technical skills are in rt supply. Loss of key personnel, cou-

stment, made the traditional hostile

rm a high-risk situation.

However, there is an increased rec on that the real value in more mature information technology companies goes far beyond people and is, in fact, created by access to an established custom-er base, proven product technologies, ater usse, proven product technologies, at tractive geographic markets and channels of distribution — assets that even hostile takeovers won't destroy. This value shift means that temorrow's information technology raiders will not necessarily mises. necessarily mirror the adversarial like-ness of a T. Boone Pickens or Carl leahn but might emerge from the ranks of com Also, for many information technol-ogy players, diversification into new pro-uct lines and markets in a must for sur-

og pålyers, deventhectsom atte der protection og der protection ensminel protection ensminel protection ensminel protection ensminel protection og der prote

served companies and the companies are phenomenon in the information technology industry. According to Prombere Associates, more than 2,000 transmission were seen among the technology companies and the contract of the information Technology companies in technology companies in industry to prepare and applications, and the companies are proposed to the companies of the companies and the c

and cyclin managed by their cut at cheen stage, managed by their cut at cheen stage, menting application, and the stage of the stage of

be hostile, in addition, nearly 50% of pub-lic information technology firms are small market capitalization stocks (less than \$50 million), which tend to have a high degree of inside ownership. Even as unwelcome suitors begin to form a larger exception, friendly deals are likely to continue to be the rule.

Seducek is an associate at Broadview Associates, a margers and acquisitions and investments banking form based in Fort Lee. N.J.

EXECUTIVE CORNER CFO steps up to presidential slot

Tom Wicoletts Lickiff financial officer and chief operating officer of Procuse, will assume responsibilities as president and many responsibilities as president and beard of the process of the process

Phoenix Technologies has announced that President Lance E. Hansche will take on the additional title of CEO. Hansche assumes this responsibility from Neil J. Colvin, who will retain the role sirman and also add the new title of

John R. Zeeman has been appointed by Umberto Nordio, chairman of Galleo, to CEO, succeeding Justin Dukes. Zee-man held positions with United Airlines as at of mar



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Western firms in Beijing rocked by unrest

BY CHRIS BROWN

HONG KONG — Political demonstra-tions in China last mouth severely ham-pered the computer business in Beijing, with many Western companies sending their forcign staffs out of the capital until the current subsidies.

the unrest subsides. Wang Laboratories, Inc., Hewlett-Packard Co., Prime Computer, Inc. and AST Research, Inc. all pulled their staffs from Beijing. Most firms contacted by Computerworld reported that they were officially remaining open in Beijing, although business had come to a near halt.

The major difficulty reported in Beijing was that those responsible for computer was usat timee responsible for computer purchases and services were either not to be found or immobilisted. "We've found out that the end users have dauspeared," said Karl Miclean, Hong Kong and China manager at Memoress Telex N.V.
"They've either not in their dirices, or when they are in the offices, no noe's making decisions until the power."

in place.

A Wang source, who saked not to be identified, agreed. "The problem is that it is hard to get in touch with the end users because all of them are [Communist] Particles of the property and the content with ers." the source said.

Western firms also complained that transportation had broken down throughtion that transportation had broken down throughtion to be the property of the control of the contransportation of the control of the c

commitments in the Chinese capital, though not all chose to return their staff members to Heng Kong.

Wang, for instance, offered its expotifies that the opposition of the staff the staff that the

scheduled to return this week, according to an HF source. However, officials at both IBM and DEC agid that neither firm had evacuated staff members nor had plant to do so. Western firms agenerally were the record demonstrations as a gifter in Cinacis. The control of growings at stable, if Demonstration, and the control of growings at stable, and the control of growings at the control of growing to the control of growing at the control of growing the growin

here retreated. "What one does husiness in a place like Chair, one out of expected in a place like Chair, one out of expected in a place like Chair, one out of expected and Peter Piezcher, general manager of Chaire Olsee Knowl, "devt that the water that it was in the Philippines is few years aga; I have also does beamens in compa there. Chairs have proven to be once of the more stable countries. I managing of rector at international Data Corp. (China), Chairs is to deependent on foreign contributions of the contribution of the contribution

NICKELS & DIMES

Datapoint reported a net loss of \$21.3 million for its third quarter ended April 29. Revenue for the quarter totaled \$75.5 million, compared with \$88.4 million for the third quarter of the prior year.

General Parametrics Corp. announced second-quarter net sales of \$6,217,000, compared with net sales of \$6,158,000, during the second quarter of fincal 1988. Net income for the quarter ended April 30 was \$53,000, compared with \$1,024,000 for the second quarter

Scientific Micro Systems, Inc. re-ported a net loss of \$754,000 for the first quarter in 1989, compared with a net loss of \$9.3 million in the first facal quarter of 1988. The 1989 first-quarter results in-cluded an operating income of \$576,000.

Japanese electronica giant Matsushita Electric Industrial Co. posted a 30% consolidated net income increase on a sales gain of 9% for the fiscal year ended March 31. Consolidated net income for liscal 1989 climbed to \$1.62 billion. Con-solidated and the consolidated and the con-

"...Computerworld Response Cards reach our market. I know this because we got 260 cards back right away."

Carlos Cadalto is president of Integrated Systems Technology, Inc., a 10-year old CICS consulting company that recently began marketing PC-based development tools for on-lips systems.

The company created the Quick Screen 3270, a development tool that helps analysts design screen for CICS and IMS/DC systems — without requiring a programming background. The next step was to determine the best way to reach the burying market for this new tool. And for Carlot, the first option that come to mind was Computerworld.

"I wasn't sure exactly how to do it, but I knew that Computerworld reaches the people we want to talk to. So when I met with a Computerworld sales represent-ative and described the situation, he suggested Computerworld Response Card decks.

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15

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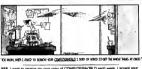
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COMPUTER CAREERS

Software start-up questions

A successful software company requires more than just a good product

BY JOHN RODRIGUES



al fascination for many information systems professionals yearning to be entrepreneurs. Before ng the gamble, however, it is wise to absorb as much information as possible.

One important question to consider is what distinguishes the software market from others. Another key thrust is learning how to analyze the market and the survivability of new software products. Do not overlook the basics of a business plan, sources of capital and the need for sound legal and financial ad-

The low overhead cost for software development makes it easy to get into the business. To stay in the business, however, is not so easy. To win, you try to maximize your strengths and fill customer needs, especially those

requiring your unique expertise.
Today's customers wan want nore than just software — they emand service. "The customer is always right" is the right attitude for vendors.

tween end users and information including geographical regions systems professionals. However, and types of products and cuser, any customer could be look-tomers. ing for vendor support that includes standards, interfacing with other products, training,

documentation, a long prod life, upgradability, responsive ness and cooperation with ven dors of complementary prod-

now earning almost half their income from service-related activities, the signs are unmistakable. End users do not live by product alone. A successful software company is one that satisfies customas pende for persica and sun-

There are plenty of potential environments for new products: new techniques such as hyper-ware, migration from larger systems to personal computers, emerging technologies such as ontical storage, changes in computing such as work group productivity, integration of off-theshelf products such as desktop publishing or local-area net-works and add-ons to established

ing the market Gauging the market
With so many points of entry
available to the would-be entrepreneur, the first step is to identify your target market. Analyze

rity. Take advantage of trends such as connectivity and Macin tosh-like interfacing. Practice course-correction; you need to think about potential technologi-cal developments that could un-

groups, acade of the market for greatest secu-

Some companies use a vapor-ware announcement to gauge the market's reaction before sc-tually producing anything, but this is not appreciated by poten-Compare the types of prod ucts and customers with the nostition's offerings and

ND USERS do not live by product alone. The successful software company is one that fills customer needs for service and support.

rcut your sales. Avoid competition with big ms unless there is a niche to fill. Be selective about the hardware the product will run on — the price/performance ratio of computer equipment will keep falling. To survive, the product must be faster, better, cheaper or more glamorous than the competitions' offerings. Once you have matched your

Once you have matched your strategy to your target marks, determine the specific end-user requirements. Is the market general business, a vertical in-dustry or a niche? Figure out the number of potential customers and the number of likely sales

strategies. Examine various methods of competition, such as lower prices, innovative terms, superior benefits or better support. Spell out development plans for sales and marketing service and warranty policies product installation and support

from them. What is a good selling

price? Calculate the net profit ner sale. Sources of information

other than the potential custom-ers include sellers of software

and related products, trade

mic experts and

staffing, engineering, ad tration and finance. Also, figure out the number of potential customers and the number of likely sales they will generate. What is a good selling price for your product? Calculate

the net profit per sale.

A cost/benefit analysis can help you determine how custom-ers justify a purchase. The analy-

sis involves a graph with two axes — the vertical one reflect-ing cost and the horizontal one depicting time. Plot the cum ve benefit to the customer over toe, perhaps as ne, perhaps as a rising of

Aso, poor the customer over time, possibly as a flat fee. The pay-back for the user comes at the intersection of these two lines, which is where the product has paid for itself. Such an analysis can help determine the size of

Finally, a new product can be evaluated against ideal standards in areas such as marketing, pro-

ction and growth. When it comes to marketing the ideal product will use current distribution channels. It comple-ments any other products that you market and aids in their

Such a product costs less that the competing products but is of the same quality or offers more attractive features. It addresses divergent needs with as few ver-

es as possible. This ideal product should be veloped using available equent, current skills and a mi

mai staff.

Demand for any product will grow if it fulfills a need and provides a high degree of added value while facing a restricted number of competitors and a growing number of end users.



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MARKETPLACE

Read fine print on licenses

Before signing the dotted line, be sure your legal interests are protected

BY LISA GUISBOND

arm hells should ring when ary consumers take a quick ok at a software license agree-ent, but all too often, the bells

remain silent.
Just compare the part of the
agreement develed to the venderly edispations with the verbings discribing the purchaser's
repossibilities, says Cart Klane,
director of management advisorys servious at the New York office of accountant Kenneth Leresthal & Co. The weight of
words usually comes down
hardly on the purchaser because the vendor has conducted
the level inventor accessory to he legal research necessary to

otect its interests, Kane says. Kane and other experts ade that licensees devote conlerable resources to ensure at their interests are equally cure. They begin with the emise that the vendor's pro-rms contract should not be ac-

nir strategies for avoiding pit-ls by drafting a comprehen-e, well-thought-out software se agreement: obligations the vend

that the vendor is delivering what it promised and is legally obligated to do so, says Eather Rodeti Schachter, a partner in the New York law firm Schachter, Courter, Purcell & Robert and editor and publisher of "Computer Law & Tax Re-port" a monthly newplatter

port," a monthly newsletter. Make sure both verbal and written agreements are incorporat-ed into the contract, Schachter

says.

• Carefully spell out accepa Carefully apel out accep-tance terms. "You don't want user acceptance until it a all test-ed satisfactority." Schachter says. "And by tested, I don't mean tested with some package that the vendor has but with

your own data. And you do it yourself." • Assign resp Assign responsibility. If you're acquiring software that a number of vendors are involved with, make sure one party is an-swerable to you. Alternately, Kane suggests, get a definitive list of who handles what, includ-

ing diagnosis of problems.

Consider your future needs. Kane suggests that before you nign the contract, you take advantage of any leverage you might have to obtain advantageous terms on future acquisi-tions. If you can predict what ad-

may eventually require this is the time to negotiate a favorable

• Include effective remedies

for error correction. This be-comes important when the vendor cannot promptly fix a bug be-cause of the departure of the

of vendors are involved with, make sure one party is answerable to you. code writer Clarence Ridley, a

nartner in the Atlanta-based law firm King & Spalding, notes that custom software vendors often ffer from a high turnover of illed programmers.
"Availability of program

source code is a frequent con-tractual remedy," Ridley says. "However, the license from the vendor must permit use and alteration of the code by a third party hired by the customer to

party hired by the customer to perform the error correction."
• Ensure adequate indemni-fication against copyright infringement suits. Kane and Schachter agree that most contracts cover this point to some extent, but licensees need to ensure that the coverage is exten-sive enough to address their

companies needs.

As Schachter points out, more and more software is not heral to the business but vital to the operation. If something appens to prevent its use, the

siness could grind to a halt.

Kane warms that indemnifica ion should not necessarily be limited to the cost of the soft-ware but should include all legal costs and any other expenses incurred as a result of a suit.

Schachter goes so far as to sug-F YOU'RE acquiring software that a number

> gest considering a clause obligating the vendor to replace the oackage with poninfringing software, taking into account limits on the vendor's res

on the vendor aresources.

Seek to maintain operations in the event of a dispute. If the conflict is between
the vendor and the user, as opposed to a third party, consider
inserting a clause that allows you
to continue using the software if
the issue is noncritical, Schach-

"You definitely have to look at the entire transaction and see if that kind of clause would be helpful. The idea is really to keep the wheels in motion if in fact the dispute isn't about a central is-· Protect yourself in the

event that the vendor files for bankruptcy. Kane sug-gests stipulating that there will be prior notice given in the event ankruptcy to allow the uses access to the software source code, "That's typically done in an escrow agreement if they don't want you to have the source code in the beginning."

be says.

Read the fine print. This is classic advice but worth repeating. Kane says his firm saw one contract stating that service hours would be based on working hours in the time zone of the vendor's location, which were not necessarily those of the us-

not take lightly an investment in crucial software, even though vendors' contracts sometimes "read like you're buying a box of paper clips." Guisbond is a free-lance writer based in

ary. Kane says, do

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TRAINING

An author's ACE in the hole?

BY JANE STEIN

Occasionally, the computer-based training (CBT) field finds a new wrinkle in the realm of new wrinkle in the realm of courseware development. First, special-purpose authoring lan-guages such as Computer Teaching Corp. a Tencore took most CBT development out of the hands of Cobol program-

The early 1980s saw the arrival of menu-driven authoring systems that allowed instrucsystems that allowed instruc-tional designers with minimal programming skills to take con-trol of the authoring process. Goal Systems International, Inc.'s Phoenix is now the most dely used of them; the latest ion of the CBT Guide by agarten Publications, Inc. in on, lists a total of 68 authoring systems that accommodate every conceivable platform. In 1986, Behaviortech, Inc.,

ed in Irving, Texas, introaced a micro-based authoring retem dubbed Exemplar, the ret commercial authoring syn-

ystems technology. Now, Eiron Technologies, nc. in New York, an American

idiary of an Israeli company, has entered the scene, waving the artificial intelligence flag over its Automatic Courseware Expert (ACE), While Exemplar cuses its expert systems technology on tailoring interactions to the student, ACE aims to re-lieve the author of much of the ont-end work of courseware development. The \$180,000 system is based on a customi Digital Equipment Corp. VAX

Pazzing the beta text ACE, which recently emerged from beta testing, has been purchased by four American compa-nies so far — AT&T, Pennwalt Corp., General Dynamics Corn. and Unisys Corp., all of which

were beta-testers.

ACE works like this: An operator sits down at the console and runs through a section of any software application - main frame, mini or micro. ACE auto matically logs the operator's keystrokes and, on instruction,

captures selected screen images. Then, a few commands at the main console instruct ACE to generate the courseware.

The result is a short but com plete micro-based CBT module on the function just demonstrated, from introductory screen to practice exercises. Users theo take advantage of ACE's extensive options for further customization and elaboration. Elron says that the ability to deliver mainframe-based courseare is on its way. Lorraine Mitchell, head of the

ACE project at Pennwalt, a Philhis beard shoroisal manufacturer save with it she can produce and refine a half-hour tutorial in a 40-hour work week. Making no modifications, I can do it in two days," she says. That contrasts with the typical 200 to 400 hours of development for an hour of CRT courseware using othersystems

Despite such apparent virtues, the high price of a dedicated system for producing simple tutorials on basic computer op erations can be troublesome The prices of more traditional

systems range from \$79 for the stripped-down micro-based Pa-reto from Information Processing Associates to about \$61,000 for perpetual rights to the Phoenix mainframe version.

To show the cost-in process, assume a \$35,000-aours to produce a half-hour tu

torial using a traditional system such as Phoenix. Each tutorial costs about \$3,000 in staff time. With ACE, the developer may produce the tutorial for \$700. using Mitchell's estimate of one week per course, for a savings of \$2,300 per tutorial. It sounds great, but you would have to produce 78 tutorials before recouning the price of the system. ACE bondage If the information systems de-

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nartment used ACE to replace off-site, stand-up lecture cou ses, as Pennwalt is doing, the financial return would be much quicker, users say. However, firms that have re-

isted the siren call of CBT have done so largely out of doubta about its quality and effectiveness. Even traditionally pro-duced CBT is much cheaper than classroom training.

Although ACE ups the ante on the cost side, it does not do

whether to use CBT as a primary training medium. However, direct cost savings

are not the only reason to adopt an expensive new technology. Larry Page, manager of training and development at the Data and development at the arms Systems division of General Dy-namics in St. Louis, argues that ACE's specimess redefines his back and reassess all those [courses] we bypassed in the past because we didn't have a large enough population to justify the training development cost," he

Robert M. Rubin, Pennwalt's vice-president of MIS, says that vice-president of MIS, says that distributed computing in support of decentralization of business units is the inevitable and desirable wave of the future. He says fast and flexible training is critical to the growing independence of his company's individual busi-ness units and may not require strict cost-justification.

When it comes time for something that is potentially a breakthrough in the way you do be stretching it a little to say you're absolutely certain on the dollars back."

Stein is a free-bance writer based in Ar lington, Mass., and is former editor of Date Training and CBT Directions. much to allay concerns about

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Trading heats up as the month ends, and shares start June high

CIO dealt new hand from reshuffled DEC

BY ALAN J. RYAN

MAYNARD, Mass. — Longtime Digital Equipment Corp. veteran Belford E. Cross has stepped out of his post at the top of DEC'a 6,000-employee information systems or ganization. Cross, who for five years beld

the title of corporate manager for Digital Information Systems. I move into a yet-to-be-select ed senior management position, according to DEC spokesman leff Gibson.

elf Gibson.

John Sims, vice-president of strategic resources, will take over Cross duties as acting man-

over Cross duties as accing man-inger until a replacement is asmed, Gibson said.

According to a source within DEC, it is unusual for a ranking official to be moved prior to the minimize to be moved prior to the saming of his successor. Cross rould not be reached last week

Routine restructuring Terry Shannon, director of the DEC Advisory Service at Inter-

Mans., said that DEC "seems to have a restructuring every year," which generally takes place at the end of the fiscal year. "I would be heattent to say thin is a portent of anything extremely

a portest of asyrung excremeny Cross, who called himself a proposent of electronic small and electronic conferencing in so increase with Computerwords Concerns incided ministaning socurity of both proprietary information and intellectual property and heoping the company on Cross, who has a luckground in mechanical engineering, has worked in must peacife positions in DECs manufacturing operations of the company. It is pears with the company.

e company.

Prior to his move over to the stems area, Cross served as general manufacturing manager for distributed systems and gentor distributed systems and gen-eral planning manager for general amoutacturing. He has also been pinnt manager for DEC's Augusta, Maine, plant, which be helped to open in the early 1970s.

UB looses 16M-bit Token-Ring

BY PATRICIA KEEPE

SANTA CLARA, Cairi. — Un-germann-Bass, Inc. hast week re-vealed plans to deliver an BM-compatible 16M bit/acc. Token-Ring that will one-up IBM by also running over inexpensive un-shielded visited pair cable. But the product will not be available.

chip.

A number of users angrily complained last November when BM introduced a 16M bitsec. network for only the more expensive shielded wire. UB President Rajbi Ungermann said that his company decided to support both wiring types to address these occurrents.

"They want to be absolutely assured that twisted-pair is a safe direction to go in," be ex-

Ungermann said many of his organization's users are in fore process of wiring new buildings and establishing long-term — 10- to 15-year network strategies. Some prefer unshielded twisted-pair, while others have a showering the control of the cont

considerations in their buildings.
Ungermann added.
In addition, UB's 16M bit/
sec. Tokes-Ring will run over ca-bing systems from British Tele-communications PLC, AT&T and Southern New England tenhone Co. The migration to 16M bit/

ac, speed is expected to be slow,

City Hall turns into the constituents' PEN pal

BY J. A. SAVAGE

SANTA MONICA, CALIF. -For a growing number of residents here, city government is as far away as the living room.

as far newy as the living room.
When are the grunion runing? Call up the recreation programs, beach subset. Can the
brown glass go with the
green glass in the recycing base? Access the recycling menn. Want to give
that city councilor a piece
of your mind? Use electruoic mail and expect an
answer within 24 hours.

Since the Public Elec-

Since the Public Elec-onic Network (PEN) be-in in late February, near-1,000 uners have been sthorised to access the authorized to access the system. "Our goal was 500 users in the first year. We had 500 users in the first two weeks," said Ken Phillips, director of the city's information sys-

bers were given portable uters in 1984, according to

Phillips. Because they had access to city files, the idea of giving their constituents access began



already a vendor with the city, and convinced it to donate the hardware, an HP 9000 Model

reson of Unix.

With the hardware in place, persuaded Metasystems Den Group, Inc. of Washington, sign Group, Inc. of Washington, D.C., to donate its Caucus con-

One of the first prob-

Hacker ring

composers. It is the infections into voice-mell computer crime," said Wa-lam Cook, assistant U.S. attor-ney for the Northern District of

may for the Northern District of Billiones. March wing much limited by the second of the second of

be fully integrated into its Ac-cens/One platform and will in-clude bridges to FDDI, Ethernet and its 4M bit/sec. sibling.

There are no plans to provide

fraud in Canada.

U.S. Department of Just officials would not say how m

1992 ROM PAGE 1

ers like him have to be prepared. As the date scheduled for the tive trade prac

among the 12 member co of the European Economi munity, Jan. 1, 1993 promises to be the

rt of a new era in The years less to that change ill also be fro

en charged with

"What we'll be looking at is sentially the United States of pe, so obviously we're talk-Darrops, and a big changes, said Dan Cence, manager of in-ternational applications at Polar-oid Corp, in Cambridge, Mass.

The chief business forces ex-pected to shape information sys-tics.

ns management for the 1992 itchover include a rearrangeritchover include a rearrange-ent of resources, the need for sproved communications and e ability to handle expanded siness throughout Europe. In many cases, the starting

In many cases, the starting us in the race for change has already been fired. Thomas G. La-recque, president of The Chase fashsattan Bank, said his firm is eady to take "full advantage" or urope 1992 and has invested wer \$2 hillion in technology that

will help smooth the transition process. Similarly, Polaroid offi-cials say plans have been under way for the last nine

The reason for this only start is that al-hough the EC has tar-peted completion of the last day of 1992, most of the directives will be adopt-ed by the end of this year. What have been

ganizational issues up until w are rapidly becoming sys-

ne issues. The trouble is, IS managers re shooting at a moving target, ne that includes networks, ardware, operating systems ad software right down to the splications level.

applications level.
"There is no serious linkage
that says the potential of the single market will be X, therefore
our business will be Y," CârouLondon Vice-President Derek
Nicholas said. "There are many ount before you can say to the information technology manag-er, 'Go plan me a processing sys-tem that will deliver this product unit cost so that I can compete for market share."

Most systems managers agree that basic questions must first be answered; Who decides it be answered: Who occurs ere and when changes should made? What architectures I be used? Are data definitions same within each segment of

the er? Are systems agte to handle a ant uotick in ss? Are com nications lines ade-

Quate?
One way to get a sense of how 1992 might look is by studying the impact on IS of the 1988 legislation

that provided for bor-deriess trade between the U.S. and Canada, At Sterling Drug, Mattson said his plans for et-cutting and con Sterling's ites with intersection to key data ers in the U.S. are helping prepare the

for open Europe 1992 will bring. A recent KPMG Peat Marwick survey Mot Life's reports that most ex ecutives feel that a single European market will not truly emerge until the mid-1990s, making planning for the first few years a struggle. "The really important years are from 1995 to 2005." Nicholas

said. "That's when we'll see main activity Those changes may possibly bring fundamental corporatewide shifts, and as the company bends and creaks. IS has to be there to make sure everything goes well. "The chief word is "flexibility," said

vice-president of information resources for Levi Straum & Co.'s international IS function, "We're dofunction. ing things we are more sure about first,

and as the story un-folds we may need to reprioritize."
European systems

nagers need to confront these iges now, U.S. systems n face no such ultir managers face no such utan-tum. However, the work of their European counterparts has been a catalyst for many IS execu-tives; of the 900 managers d in the Peat Marwick survey, three-quarters said the threat of increased European

competition is driving preparations for 1992. Although most of the execu-tives queried said they see a unifired Europe as a positive move, an additional 40% fear it may have a negative impact on the U.S. economy, saving that such a S. economy, mying that such a trket might adopt a "Europefirst" attitude and could lock out

gn business. The er in their hands power in their hands. They'll have the but, the ball and the ball-field," one executive

spite th perhaps because of m — most executives admit that plans

are being hatched to take advantage of the changes. "We are aware of it and are concerned about it," said

Dan Cavanagh, senior vice-pres-ident of information systems at etropolitan Life Insurance Co., here IS operations in the UK and Spain have recently been re-organised under the same execu-tive vice-president. Additionally, a 20-year systems veteran has been assigned to address the New York-based company's plans for 1992.

In other firms where the EC's changes are not playing a leading role in IS plans, they at least have secured a supporting part. "You don't forget the possi-bilities of 1992 when you're making your combinations or your acquisitions. sold Vincent H. Swoyer, vice-president of cor-

porate systems at Sara Lee Corp. in Chicago. While Swoyer conceded that Sara Lee is establishing a presence in Europe through business combinations and acquisitions, "we have not promulgated a pro-gram that is aimed specifically at

but-continue view men but-cuttous be right on the mone

The report concluded that much of the 1992

discussions are based on hype and that the restrictions may not translate into increased trading or a vast all-Europe market. Lan guage barriers, national brand ties and cultural and economic differences will not disapnear with the stroke of a pen, the report said

Among those who believe opportunities await, centralisation is often a paramount objective. At Levi Strauss, formerly decen-trained European operating units will soon be joined like spokes on a wheel. "The struc-

ture of our husiness in Europe now is geographically orient with each country run ike a separate busi-ness," Levandowski said. "We are hoping to switch that to a sin gle European divi Among

dowski's plans are es-tablishing EDI links among his firm's Europ counts, creating Levi Strauss only stores and introducing point-of-sale technology abling the firm to keep a close eve on customer purch

ized through a core team in the home office, wherever that might be." Friedman

structure

ets and yet

es. That facilitate production planning. would be the treme," he said. A recent repo School stated that Swoyer's optin

"This is a way for us to move even closer toward systems commonality" between U.S. and European operations, said Al Hy-land, director of worldwide sys-tems at Polaroid. "We would like to provide a common technical zoornach — a common piatform. mon systems software for the business aspects — and we hope to construct and develop on that same platform individual pieces that fit individual coun-

Sales, marketing and distribu-tion promise to be other key a-cas affected. Many executives and to the con-stay key strategies will include expanded marketing and joids ventures with European compo-nies. Colgate-Palmolive Co. al-ready has begun to contralate manufacturing while standardis-ing packaging and product for-molias. Philip Mornis Interna-tional has set un terminal towas the contralate of the con-tralate Sales, marketing and distribu

has set up localized marketing and sales and is centralizing its computing efforts.

These changes will in turn ripole through the organization. Hy-land said Polaroid is considering pricing on an all-Europe basis. This system would in-

clude centralized files, on-line price quoting and pricing indepen-dent of shipping location. The shifty to reduce paperwork, which has hobbled cross-border flows, will mean greater commu-nications, Hyland added. However elaborate the sys-

tem changes, the central artery of the IS network will remain a crackerisck telecommunications system. Alan Kammen, an analyst at Lexington, Mass.-based research firm Nolan, Norton & Co., estimates that by the year 2000, 60% of all employm opportunities in Europe will rely on the ability to use voice, data and imaging technology. To pre-pare for that, the EC is working

toward revamping communications within its borders. To some, this movem esent the most crucial chal-age. "Trillions of dollars are ienge. "Trillions of dollars are being spent to moderniae the communications." Nicholas said. "But if the regulations and use conditions of those telecom-munications facilities remain as in the past, then all that money will have been wasted."

The adjustments may also change the telecommunication function. "We're not just talking about interfacing arms."

out interfacing anymore," nce said. "We're going to need to consolidate our ini tion much more quickly. There will be a much stronger need for good, solid communications, especially when making the organizational transitions to address to address. the needs of 1992.

IDG News Servi nt Amiel Kornel contributed



As director of technology at o Morris Internati Phil Friedman says be is sure the cigarette giant is moving the right way to take advanof the opportunities

tage of the op 1992 will provide. Other compaies may be acrambling to get into the 1992 mind-set, Friedman said: "We're in position for 1992 based on our culture and our direc-

Philip Morris alrendy has centralgement, pro

inventory management, dman said. However, it es not make good business see to centralize all of the use to centralize all of garette factory operati here are five plants in West ermany, the Netherlands, jum and Switzerlan You make the pro

ere you have raw materi waterways and oth



ing to Friedm 0.00 ny's di ness re ness requirements, he said. "Part of that is 1992, and part

of it is paness plan."

Other preparatory to include aiming for systems consisty with the firm's consisty with the firm's corogen.

ALANJ. RYAN

Renault also braces for change

INPERSON When the 12-nation Europe

munity unites for bus oses in 1992, non-Euro es will have an opp mpanies will also be aff IDG News Service

European bureau cor-respondent Amiel Kornel recently inter-viewed lean-Paul Merdirector of or-

ing at Renault sicules Industrielles. Renault, head-quartered in Lyon, is a leading European man-ufacturer of trucks. buses, fire engines as

How will EC pla

nts in France, Spain and En-nd. We are expecting a simplidise between the diffe

est means using the same ap-cations in France, Spain and agland. For the user, it must be Currently, we have a single com-puting site for all the industrial activities in France and diff computing structures for En-pland and Spain. We are now try-

need more and more to we the same specifi-tions in all the Euroondly, we need to offer sales and maintenance even those we have to

1992 plays a role in this. We know our market is much more Europe than just France.

er systems, we can have a meany with a single comput-

new dialing systems, Waller-stein said, so GE will be able to

"deploy people and resources in the most efficient way possible

to do with the changing environ-ment" in Europe, in which trade

ow else will the unified arket change your op-each to computing? stead of having different com-

Rhyme and reason

outs, pagements working in co-crisi guidelines. With each border or rage of regulations, some of which ally created to inhibit outside trade

processes or regulations, some or writch had been up-cifically created to inhibit conside trade.

The Single European Act of 1986 promises to apongs awa these inequities and make each country an equal partner, successful, the move would create what is in essence the world's largest trading bloc — a \$4 trillion market serving \$2.2.

allion people. Excitement about the changes has grown tremendously and snow reaching these shores in cornest. A recent survey by the lank of Boston reported that nearly 60% of American compa-ses with no presence in Europe say they plan to enter it as a re-ult of the creation of the unified market.

ing structure. If we have a contract that is less cumberso

here on your compute procurems at costs? There is already a textible pri war between vendors. I think M since it has such a s sition at the high end.

ng users, 1992 will lead to ion of bigger and ies. This process on favors the cre

Exact change
The Single European Act amendment to the European
Community's charter is intended to lead to the following:

ogy copyright law, including the

creation of an EC trad

Elimination of fiscal burriers, including the harmoni value-added and excise tax rates

GE blasts barriers with unified network plan

BY ROBERT MORAN and ELISABETH HORWITT CWITNEY

NEW YORK — Positioning it-self for the planned toppling of European trade and communications barriers in 1992, General Electric Co. Itst week an nounced plans to link corporate sites worldwide into one homogenerals communications sys

The network, which will eventually connect 25 countries,
"is the first time AT&T and foreign carriers got together to cre-ate a [private] network to provideo services for a single customer, covering six continents," said Stanley Welland, GE's man-

ing to impose the same work-ing methods in England and Sogin and, consequently, the

ger of corporate telecommuni-

cations.
AT&T, France Telecom and
British Telecom will work with
other telephone companies to
set up a private-line network
that will eventually allow users
at any CE site around the world
to communication
to communication
go plan and communication
protocols, according to AT&T
manager Richard Walterstein.

ment" in Europe, in water trace and communications burniers be-gan to come down long before 1992, Welland said. GE chose to set up a private leased-line network, as opposed to ordering data, voice and video

services piecement from various carriers, because it enabled the anufacturer to serve its users ore flexibly, he said: "We've sen living with a patchwork nit for a long time, as have oth

used video channel can be re-ocated to serve a sudden in-case in data traffic. ne network control center in nceton, N.J., that handles its nestic network, Welland said.

Three-company contract GE aged a five-year agreement with AT&T, brisish Telecom and France Telecom for an undiactood amount to build the network, which will use terrestrial digital facilities and occupy approximately 2% of the trans-Atlantic filter-optic cable known as TAT&B Backup for TAT&William Committee of the committee of

ment on which vend ight be tapped for communica-no equipment, other than to afirm that the equipment will have the potential for migrat-

ave the pote

consistent and a Proceedings. Many, and deliberate million of filters.

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TRENDS

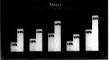


Software survey

t of companies with software installed













COMING

The Media Lab at MIT is renowned for its innovative look at the future of technology, but the lab is not without controversy. As the recipient of large amounts of money and at-tention from Japanese con cerns as well as U.S. industry, the laboratory must work hard to maintain a critical balance and clear focus. See Page 1 next



S teven Gold says he's never met an application that couldn't be downsized. See why in next week's Executive Report.

how to recognize who's who in the data center. they'll soon be able to get down to the business of grinding out that code. Are you the martyr, the meeter or, perhaps, the know-itall? On the Viewpoint page next week, Michael Cohn provides an amusing look at some of the types that populate the data center

f executives can learn

INSIDE LINES

From the horse's mouth

Maintime MSA Management Science America will continue to make news next week with a product announcement. The company will vie for the attention of the executive notes with an executive in-formation system designed for one with its financial applica-tion. The product in the result of a joint development agree-ment with Committee in Am Artory, Mich.

Mixed signals

rniacou sagafilia.

At a Boston person conference two weeks ago, Bill Kay, Hewlett-Packard's workstation general manager, suid emphatically
that HP would not by off employees at Apolio as a result of the
acquasition of that company, But this week, as HP spokesses
confirmed that there would indeed be layoffs and that some
Apolio employees will be given the opportunity to take jobs at
HP devisions throughout the county.

JAVEITH MILL OVERTS
Sources close to Lotus report an interest
The firm is currently developing a financi
that runs under the OS/2 Presentation M
by dispensing with its total rows and only
product bears some resemblance to Javel

About time for a detention?

ADOUT TIME FOF a determinor.

Althor Title is well entrenched within the ranks of the late and shows no signs of giving up this dubicus honor. The firm is shreedy late with Dhane IV 1.1, a product that fixes bugs and talks to SQL Server. Those waiting for 1.1 to show might as well take the jumner off. Word from Althor-Title is that the third quarter will be the charm, an previously reported here.

What goes on behind closed doors
The fact that training values on stocked Gas Microystems
The fact that training values on stocked Gas Microystems
The fact that training values on stocked Gas Microystems
that the behavior before its amounted that quarticly
carriages would be off has caused whisperting in the raise. Although San broke the eners after the took market closed start
Thursday, jus issues were upon of the hottest on the NASDAQ
and even infill 31-55 in sup starket. One subject sorder that the
coincidences "would indicate that emerone have and acted
upon" the news in advance.

Alas, poor Sydney

rases, pour cycliney Let us mours the passing of Sydney Development Corp., small but feisity Open Systems Interconnect software ver-that recently defeared basineyure. This issues Systems archival. Retix, with a fairly open field in the PC LAN-ba-X.400 software erens. Industry southboth has it should year an experiment of the property of the property was doing well in electronic mall but had diversified into its more illustrationed orinierts.

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Jees 5, 1909 Integration

·Cover story: Changing the way business does business

• Exclusive PC LAN security

survey ·Integration visionaries

·Beating the budget blues

·Strategic alliances: A winning

combination

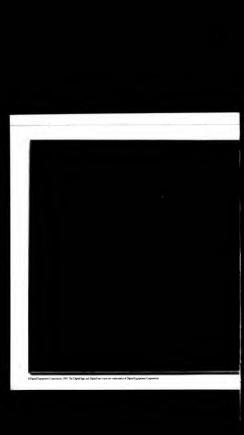
The OS/2 migration dilemma











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"Aristech wanted the best business information

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we cau.

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the company in the long run. Digital's
flexible architecture will let us grow
without making system overhauls every
few years, protecting our investment.
And well be able to share and integrate
information easily at all lavels—from the
plant floor to the desktoos of upper

Deptis bejord as our finance and suppose the bejord as our finance and suppose operating in only other between operating in only other between operations and reduce our corporate overhead and data processing costs. Deptis dystems also help manage plant operations. Integrating business and operational systems will provide us with exter information to we can use resources more efficiently. And gain a competitive shurtness."

The rewards of working together.
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it now.

-Bill Walston scrate Comptroller sch Chemical Corp.



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. Tot too long ago, a few dozen people sharing the same nro- N_{grams} , resources, and information on a single computer at the same time meant only one thing-a mainframe Powerful, big, expensive, and proprietary

More recently, the same people could be found doing exactly the same things—simultaneously shanng programs, resources, and information -- on a nunicomputer A lot cheaper, a lot smaller, yet powerful enough to do the same

jobs. And just as proprietary Then along came the latest generation of personal computers And now, the same people are more and more likely to be

found doing exactly the same things-simultaneously sharing programs, resources, and information-on a PC And not a whole officeful of PCs networked together, either, but a single PC powering the whole office at once

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COVER STORY

BUSINESS IMPERATIVES

Combining technology and business can do wonders for the bottom line. The key is to wire integrated technology not as a cost but as a resenue generator. Ask the likes of Shell Oil or General Foods. By Mark Breibart. Page 24.

FEATURES

CRIME TIME

Our exclusive PC LAN security survey. By Ann Dooley, Page 30.

INTEGRATION VISIONARIES IS professionals who changed the status quo. By Helen Pike. Page 34.

EN ROUTE TO CUSTOMER SATISFACTION Greybound's network strategy gets the firm moving. By Stan Kolodniej. Page 42.

SHOULD I STAY OR SHOULD I GO? Why DOS users baven't been migrating to OS/2. By Craig Zarley. Page 50.

Strateric alliances can improve the profit picture. By Stan Kolodziei. Page 54.

BEATING THE BUDGET BLUES Financial advice for integrating resources. By Helen Pike. Page 61.

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The EIS debate. TOE ON LOG OFF LETTERS Next were A few Reader

and On words from our Page 10. the road columns. editor Page 9 Page 72 MANAGING MARKETWISE

Unix workstation boom. Page 65. CORNER OFFICE Cross-functional systems. Page 65. ACHIEVERS Moc attack: MacDonald's aggressive systems project. Page 66. CLIPS

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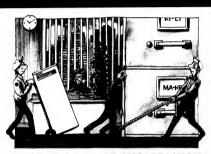
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The right mix of business and technology vision

echnology planning and business planning have been isolated from each other for too long. We must ask ourselves where we can make a difference in a business with value-added functions and then follow through with computing resources. We often forget that technology is only a means to an end.

This was really brought home to me during a talk by John Hammitt, new VP of IS at United Technologies, at a re-cent Society of Information Managers meeting in Boston. He told the audience that companies have spent ways of thinking and work methods. His point was that we can't get to where we need to go by speeding things up, we need to see the future in new ways.

Leadership is driven by having a vision of that fu-ture. Vision is a word you hear a lot these days. Everyone would like to be a visionary, but what does it take to be considered one by your peers and employ-ers? Senior writer Helen Pike talked to a number of visionaries and discovered that no two were alike and none had used the same for-

mula to achieve integration in their companies. Today's competition demands vision. Our cover story on "Business impera-

tives" illustrates that innovative use of technology is enabling changes in the way business does business Writer Mark Breibart dis covers that real integrati successes are few and far between, but once gained, the rewards are worthwhile. And that's what is keeping innovative companies struggling to find that

right mix of technology and vision in their companies. But creative solution don't have to occur just within one company. Senior editor Stan Kolodziei

analyzes a new trend — strategic alliances — in which companies join to-gether on a specific project for mutual benefit. Read about this alternative to mergers and acquisi-

tions and decide for yourself the pros and cons of merging data and resources for the short term. What stories would you

like to see? Send your ideas and comments to me, Ann Doo-ley, Editor, Computerworld Focus on Integration, 375 Cochituate Road, Box 9171, Framingham, Mass. 01701. Or call me at 1-800-

343-6474 or try our bull rin board at 508-626-0165



to see

the

future

in new

ways.

Subliminal suggestion With respect to Stan Kolodziei's arti-

cle, "A question of bias," in the April
3 issue of Computerworld Focus on In-

As a consultant, I have frequent opportunities to watch system integraion firms and vendor personnel prepare "vends. independent" recommendations for solving a user problem As a rule. I have been impressed

with the technical skills and good intentions of the people assigned to these tasks. They mean to develop vendor-independent ideas and generally try their level best to do just that. The bias, however, shows up on a more subtle — perhaps a subcon-scioos — level. The concepts they set forth in their solutions never, never involve approaches that their employer does not promote or products that

their employer could not provide

This is only natural. A Digital emplayer who has seen central minicomputers with dumb terminals solve a wide range of work group computing problems naturally thinks in terms of a central minicomputer to solve the next. Because the central mini undoubtedly can solve it, this person is not motivated to consider whether single-user micros on a local-area network might solve it better. The pro-

posal that results is vendor-indent in that the central mini oeed oot be from Digital, but it will be biased nonetheless. The same holds for relational vs. network databases, Centrex vate branch exchanges or Prolog vs. LISP. The nod will always go to the employer's product line.

Independent system integration

firms are less subject to this form of bias, but it exists there as well. The bias has been at work. backgrounds of these firms and their staffs tend to be in traditional mainframe applications. They often deal with deficiencies in other areas by forming strategic alliances with specialized suppliers. The approaches fa-vored by these partners dominate the proposals of independent system integration firms. In a way, this form of

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bias is even worse than the first. The vendor employee generally has the technical background to appreciate the merits of alternate approaches but is culturally biased against them. The is culturally biased again employee of the independent systems integration firm may lack even the sechnical shilley to evaluate alternate approaches to those that a strategic

partner offers. Users can protect themselves ainst this form of bias by educati themselves on the major options in each area of importance. For example, they can ask the person who suggests a central mini, "Did you consider mia central mini, "Did you consider mi-cros oo a LAN for this application?" If the mini can be defended objectively against informed arguments, well and good. If the vendor employee tries to dance around the question,

> EFREM G. MALLACH EFREM G. MALLACH ASSOCIATES NEEDSIAM, MASS.

Toning down the CASE fervor Just a cote to say I really appreci Stan Kolodziej's article "Caseing joint" in the April issue of Com, world Focus on Integration. The com-

ner-sided software engineering area is close to my heart, and it was a relief to see someone come out and say a few things on a topic I have been watching for quite some time Interesting is what Suzanne Nied-

zielska points out: "The technology cannot yet deliver a solution that fits every systems project team or applica-Unfortunately, vendors anproselytes of the CASE market have sometimes been overzealous in their claims of what their products or the ndustry as a whole can deliver. Hopefully, with the amount of atten tion and study going on around the country, these individuals will reevaluate their claims and see more clearly the direction in which the market is going as well as see that what is good for one may not be good for another. CARL HAMION CHARLOTTE N.C.

A spirit of cooperation I am a systems professional who has

devoted over 15 years to the pusiness, art and seience of MIS design and implementation before I joined the Dormitory Authority of New York some five years ago. As such, I feel compelled to register my strong protest with respect to the presentation con-(un)usual for Big Apple CIO" written by Mark Breibart in the Achievers section of the April 3 issue of Computerworld Focus on Intern

On behalf of many of the management and staff here at the Dormitory Authority - who must truly be recognized as the new MIS "achievers" - I regard this article as slanted, my-opic, misleading and not reflecting ome of the major reasons for the dornitory's MIS turnaround.

Technology was an imp but only one part of a multidimen-sional approach to the modernization nd integration of our operations Technology was and is a vital tool but our new management practices and staff productivity were also very uch critical factors in our rec In a sense, there are many CIOs here

at the Dormitory Authority, not just one. Among other duties, it was Ron Wooldridge's responsibility to coor-dinate the ideas of all of these "CIOs" with the appropriate technology, a job for which the Dormitory Authority

will be in his debt for many years. Contrary to a statement in the article, there were many information systems existent before the new management team arrived, albeit relatively basic and totally nonintegrated. Developing an integrated MIS was a vision created and cultivated by several members of the Dormitory Authority's top management, although certain aspects of technology coordination It is important to note that I regard Ron Wooldridge as a personal friend

were assumed and very successfully carried out by Ron Wooldridge. Our IS plan was indeed a tall order for scores of our managers and staff who were responsible for designing, implementing and converting our new MIS (all of which was monitored by Ron most capably) while perform-ing their day-to-day functional duties. The MIS improvement at the Dor-

itory Authority was the direct result

of the leadership and hard work of many of our managers and employees (devoting tens of thousands of hours to this effort) and not the product of just a few of our staff, as Mr. Breibart's article strongly suggests.

Further, it must be noted that it is a distortion to state that organizational autonomy had contributed to the authority's downfall. Our organiza tion suffered a setback in operations but never a defeat. There were and there are too many strong factors present throughout the fabric of the Dor-mitory Authority to allow a downfall, DORMITORY AUTHORITY OF NEW YORK then and now

of mine and a professi onal colleague for whom I have the highest respect. It is even more important to note that I believe Ron's input to Mr. Breibart's article did not contribute to its slanted and unbalanced presentation. I believe his version of the MIS development at the Dormitory Authority more close-ly reflects the corporate team ap-proach to our MIS success stressed in

May I respectfully suggest that more balanced presentations and broader viewpoints of your materials should be obtained through more thorough research if you are to truly achieve your objectives of providing not only answers in your publication, but answers that are both accurate and complete and, thereby, more helpful to your readers.

DANIEL I. DUGAN DEPUTY EXECUTIVE DIRECTOR FINANCE AND TREASURER

DELMAR N.Y. The intent of our Achievers column is to highlight an IS manager who has solved an organizational or technical problem and to show other readers how it was accomplished. We under-stand that any solution is rarely the work of one person working alone and that teamwork and coordination has to be involved - something we advocate strongly in our pages. We're sorry if anyone at the Dormitory Au-thority felt excluded. — Ed.1



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INTEGRATION ISSUES SPIIR **NEW AREAS OF LEGAL PURSUIT**

Marvin Mitchelson to Koch in Washington, D.C. take the case of dis-integration palimony? row to deal with evolutionary

interoperability? An F. Lee Bailey to defend the freedom of file transfers on a heterogeneous network? An unhonored systems inte-

gration contract might not require lofty oratory courtroom skills, but there is work out there for lawyers as integration increasingly moves out of the public sector and into the com-

mercial arena. As more vendors get tied to-gether in a customer's shop, the nes of responsibility and. therefore, possible blame, can get blurred. So, if an information systems manager thinks he

can sign an integration contract without a lawyer, he might want to think again. "People don't pay attention to the details," observes lames

Kurz, a trial lawyer who says he is more likely to get calls after a contract has gone away than while it is being negotiated.

When drawing up a system integration contract, an information systems manager should be looking for a single point of contact if something goes wrong, says Hurz, who is partner in the law firm of Kurz &

> ROTED BELLCORE HAS COMMIT-TED \$1 MILLION TO CAR-

SITT'S GRADUATE-LEVEL PROGRAMS IN INFORMA-TION NETWORKING, SLATED TO REGIN IN FALL

Also, "Contracts now have arbitration clauses, so you don't have to go to court," thus saving time and money, Kurz says.

The lawyer for a systems integrator should try to draw up "objectively defined written specifications," says Helene Stewart, a lawyer at Oracle Complex Systems Corp., an Oracle Corp. subsidiary that handles products and services in the government market. "That way, everyone has the same image in his mind"

Stewart adds that the goal of and state exactly what will be the contract drafter is to have a delivered and time periods for performance. — BY HELEN PIKE contract that is clear enough

that an independent third party can understand what the con-

In sum, integration contracts should give the IS manager peace of mind, Stewart says. They should use clear language for estimating functional needs

As more vendors set

tied together in a choo.

the lines of

responsibil-· its and,

therefore.

blame, can get blurred.

EVERY PROTOCOL HAS ITS DAY

The technology's nothing new. but suddenly, remote procedure calls (RPC) are the darlings of every network vendor's product

RPCs are network pro that enable pieces of software applications to run simultaneously in a local-area network environment on a variety of different processors and hardware platforms. In the age of integration, LANs, distributed processing and the push to incr

network throughput, RPCs are suddenly a valuable asset. Some vendors and analysts even see RPCs as the important vehicle in launching the next evolution of corporate networking: distributed comput-

RPCs represent a quantum lesp forward because they pro-vide the tools to build networking strengths directly into new

separate parts of an application and have each piece run on a Some even separate machine on any part of the network or networks. RPCs see remote can also encode across multi-

vendor networks. procedure John F. Slitz, vice-president of marketing and business decalls as the

important run levels vehicle in At the base level, Slitz ex-plains, RPCs take local calls and launching

distributed

computing.

software applications. They even have the ability to break up

velopment at Netwise, Inc., a Boulder, Colo., developer of RPC tools, says RPCs work on

provide programming code "At a higher level, the RPC mechanism is a kernel on which to build major client/server ap-

plications," he says. "It becomes a high-level procedural interface that generates major application code across netrks." — By Stan Kolodziel

■ COMMUNICATIONS INNOVATORS FARMERS REAP THE BENEFITS OF INTEGRATED DATA DELIVERY

n the nation's agricultural industry, a prolonged drought is aggravating the conditions in which farmers must conduct their business. But in Illinois, farm managers are fighting back using integrat-ed technology. They have set up a statewide

mications system that brings together weather, crop futures and financial dats and sends it via a television satellite that, in turn, delivers it as a radio signal to 3,500 farms in the

"The ongoing crisis in agri-culture fueled the communications need," explains Kerk Kar-raker, general manager of communications systems for the Illinois Farm Bureau in Bloomington, a nonprofit farming cooperative providing a variety of services to farmers, from in-



information services. Desiring information than the previous week's news in a weekly print format, farmers sold the bureau in 1975 they wanted more timely news on agriculture, weather and commodities, Karraker says. So the hureau's IS denartment set surance to legislative support to about designing an integrated Today, the farm bureau uses a Wang Laboratories, Inc. 7310 minicomputer as a hub for coordinating data and delivery activ-ities. The data is transmitted from Bloomington along dedicated lines to a satellite uplink

in Chicago. From the satellite, the information is sent to 18 radio stations throughout Illinois. With antennae on their roofs, farmers receive a special FM signal that transmits up to

data and delivery service.

64 electronic pages of informa-tion into dumb terminals located in their offices. Participating farm buresu members have the option of a

one-time \$800 purchase of the receiving and terminal equipment or a rental arrangement that requires a \$90 initiation fee and a \$200 yearly charge. In either case, the information is free. - By HELEN PILE (The Illinois Farm Bureau is a finalist in the Computermental Smithsenian Awards competi-tion, which recognizes out-

standing technological contri-

butions to society. - Ed]

..... EDS GOES AFTER COMMERCIAL MARKET

Electronic Data Systems Corp. (FD3) has ambition as big as its home state of Texas.

This systems integration subsidiary of General Motors Corp. grabbed headlines recently by its joint acquisition of National Advanced Systems with ese titan Hitachi Ltd. The move gives government con-tractor EDS low-cost mainframes on which to develop applications and thereby make an aggressive bid for a piece of the

commercial market. The strategy from EDS' Dallas headquarters concerns leveraging integration expertise revenue other than from the otive giant.

Even with a busy GM sched ule that by the end of the last

fiscal year accounted for 59% of irs \$4.84 billion in revenue. EDS has managed to grow its non-GM business by 30%. "People recognize that com-munications and computing are merging," says Stuart Reeves,

r vice-president in charge of EDS' government syste group. EDS wants to be known as a supplier of both.

To that end, EDS this year

one has done the following: · Upped its stake in the el c funds transfer (EFT) market by buying Autom Data Processing, Inc.'s EFT service. This purchase follows

last summer's acquisition of Mtech Co., the EFT and DP operation of Meorp, a faltering rings and loan. · Signed a cooperative marketing agreement with Hewlett-Packard Co. to bid jointly on proposals for which HP hardare, EDS software and project management services from both

management services from both companies can be innegrated. • Bagged a 10-year contract valued at \$100 million to per-form the 15 operations of the Meritor Financial Group, the action's seventh largest theift. The pact includes the purchase of \$25 million worth of Meri-tor's DP and voice and data

 Opened a \$1 billion Inform tion Management Center in Plano, Texas, responsible for 24-hour operation of EDS' 21 information processing centers and EDSnet, its global network boasting half a million attached vices. - By HELEN PIKE





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■ ON THE CONTRARY

ARE EXECUTIVE SYSTEMS WORTHWHILE?

AT ISSUE: Executive information systems. Executive support systems. The concept goes by various names, but it has a single goal. Delivering strategic information to the executive suite. Nice idea, but does it work? The debate still rages...

PRO: LLOYD BELCHER

Typically, an executive information system (EIS), like other computer systems, is viewed as a new process. Yet every executive has some form of information infrastructure whether or not be has ever seen a computer. This structure may be a series of relephone calls, memos, presentations or requests from a recognitive settings.

So, rather than thinking of an EIS as some new process, consider it an improvement to the existing process. This concept, driven by a business application orientation and coupled with today's technology, can yield amazing results.

But what is an EIS, and what does it do? An EIS is a system that allows corporate data from various sources to be converted into meaningful information, accurately, quickly and securty, It may be very small, with no more than 20 numbers, or it may consist of thousands of

numbers, graphs and text.

Who should have an EIS? An
EIS is for any executive with a
desire to improve his ability to
use information as a strategic
resource.

How difficult is it to get up and running? It is easy for a small amount of information and increasingly difficult as the information base is expanded. Should it be widely used? Particults without experience.

Practically without exception, today's computer technology can and should be used to improve or enhance the existing executive information process.

What are its benefits? The hepofits are at broad as the on-

portunities to deliver better information to the executive suite. A new delivery system ther can enhance the information, das and new ideas for presenting ecustrategic information will grow mafrom the partnership of busior mess needs and technology.

An EIS can be any size. Do
not be misled by those who
so,
would have you believe an EIS
om has to be an expensive system
complete with a team of anaan lysts and computer jocks.



cert of fix-

servicement and executive information in the plumiting and unelysis department at Caneca, lac., an oil company located in Houston.

DAVID DE LONG

Not all attempts at bringing information technology to the excentive suite have been fabrilloss successes. In fact, at least half of the attempts to implement an executive support system (ESS) and in failure or, at best, provide users with slightly more value than an extra cost hook. Although the payoffs can be tremendous, developing an ef-

vide users with sightly more value than are extra cost hook. Although the psychic part of the control of the psychic part of the control of t

Maybe that's extreme, bur unless an ESS developer has an executive sponor willing to expeed his political capital in uvisiting arms to make the system a reality, he should focus his resources somewhere else. It's unsully a waste of time (and money) to try to sell top management as ESS.

agement an ESS.

In other cases, the executive casually says, "Get me a computer," thinking the project, like most others, can be delegated. In this situation, ESS developers often become intimidated and free about keeping the "big bogs" happy, forgetting that

opert orien necome intimated and frest about keeping the "high and frest about keeping the "high and the plant and

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POSTGRADUATE PROGRAMS TARGETED AT IS OFFER OPTION TO TRADITIONAL MBA CURRICULUM

n MBA with a concen-skills, as well as his knowledge

tration in information systems remains the popular, though not the only, choice when it comes to an IS business education. But can MBA programs, IS

twist or not, prepare students to deal with real-world technical issues such as integration? Ac-cording to Jim Wetherbe, they certainly can.

■ IS EDUCATION

Wetherbe, a professor at the University of Minnesota's Carlson School of Management. says the MBA project team approach at Carlson is one way students get a feel for how businesses work.

Team effort

The teams are made up of graduate students concentrating in various fields like marketing, finance, IS and so on. These teams are assigned to companies to solve business problems. If the problem happens to be an integration one, the IS participant must draw on his technical

of business strategies, to find a solution. But the solution must be put in the context of the rest of the group's analysis. Many other business schools use fieldwork as part of a well-

balanced MBA program. Changing technology times, however, demand more of an even mix of technology and

business skills in the classroom. a mix many MBA programs don't provide. As Elias Awad sees it, MBAs with an IS slant are a general-

ist's haven, they make graduates more marketable, but they can't offer students the specialized rives

So Awad, a professor at the University of Virginia in Charlottesville, spent the last six years readving a two-year IS graduate program for the uni-versity. The unshot of the degree — a master's of science in Mis — is to prepare graduates to assume leadership roles in gree in Mis.

Thomas Jeff a in 1891,

the management of an organization's information resources. Networking, database and expert systems courses count as much as accounting, marketing and management ones.

But experience may be the best teacher of all, claims Bill Kooser, executive director of the Computing Exchange Group in Chicago, a consor-tium of seven U.S. business schools that exchange ideas on

computing and curriculu Kooser says that an advanced degree might help you climb the corporate ladder a little higher, a little faster, but most companies expect candidates for highlevel technical positions to have put in their time with an organi-zation and gained hands-on skills. — By LORY ZOTTOLA

HOTED ONE-THIRD OF LARGE COMPANIES WILL BE US-ING EDI SERVICES BY 1991, NEWTON-EVANS RE-SEARCH CO. REPORTS.

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	Albeil Corp.	CP Hational Corp.	\$283
	Connect Collular Corp.	American Cellular Hetwork Corp.	\$230
	An investor group	Lital Telecommunications Corp.	S200
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18 Computerworld Focus on Integration

"If that came out ofour mainframe, l'lleatit."

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hard to swallow. Understandable.com sidering the somewhat down-and-dirty nature of one of your average sys-

tem printers.

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USERS SEEK UNIFIED SOLUTIONS FROM E-MAIL VENDORS

Increonic mail is at the Equipment Corp.'s Mailbus and the X.400 standard. center of a marketing war heating up among large computer venportant way of gaining more control of the corporate networking and integrated sys-

tems markets. Information systems profes-sionals should be advised, however, that the E-mail market is not as clear-cut as some vendors

would like them to believe. Fact: Most large organizations have built up several proprietary E-mail systems in their companies over the years. These systems run over diverse hardware platforms. They run over proprietary network pro-tocols. They use incompatible E-mail formats for addressing

and making user directories. The increasing need to link these E-mail systems together has IS looking for a common. unifying set of specifications.

At this point, the top E-mail

contenders number

Each has its drawbacks. IBM's Officevision E-mail products, simed at the company's Systems Application Archiwith X.400, while parts of the product suite will not be avail-

able until late 1990. DEC's vaunted OSI implementation is more proprietary than standard, and the X.400 standard itself has no installed base as of yet.

Lee Dovie, an analyst at International Data Corp., a research firm in Framingham, Mass., suggests that after all the jawing, it might be wise to sit tight when it comes to E-mail. Companies heavily depen-dent on IBM hardware that have plans for SAA should im-

plement certain E-mail gateways now and then wait for IBM's full-fledged Officevision products. Dovle says. Those firms with a strong commitment to DEC equipment should consider Mailbus to link incom-

patible mail systems.

ronment

aims to

more pro-

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The growth of the electronic

essoging	market		100
	1987 (8.5. reven	1988 io milion)	Growth rate
i rice	\$207	\$330	15%
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vest Ventre	\$14	\$25	79%
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INFORMATION AND THE PROPERTY OF THE PROPERTY O

wise to sit

E-mail.

As for X 400 Dovle recommends treating it as a tactical product to create gateways berween selected internal E-mail systems. Then, in a few years, Dovle says, X.400 could well have garnered enough vendo support to become a legitimate E-mail backbone. — By Syan

cloth to absorb sound.

IBM's Officevision, Digital OFFICE SWEET OFFICE

three

On top of the concern IS professionals have about integrating corporate computing regrated ofces, they may now have to add the worry of integrating the fice envioffice enviro

Executives should be increasingly aware of making the office work setting a more ame nable place. The integrated office environment, like integrated technology aims to make people more productive and motivated and, hence, contributes to a company's long-term economic health.

For example, in a poll last ear of 1,000 office workers by ouis Harris & Associates, 71%

of the 330 employees with adjustable lighting said it enabled them to do more work. Of the 750 people with adjustable seat-ing, 61% said the chairs made The inte-

ing, 61% saud the criates inside them more productive.

The ideal work area com-bines the following features:

A setup that comfortably ac-commodates both a person and a computer system, including its

ngle of wires. Adjustable chairs with con-toured features and sculpted make people

cashions.

• A mix of direct and indirect lighting, warm-colored light bulbs and an equitable distribution of natural light.

• "Personal" touches, such as

en desks and

· Modular partitions made of In a time when firms must nake the most of all resources - technology and manpower included — spending a little ex-tra to make the office more ergonomic may bring a wealth of returns. — By Lony ZOTTOLA

.....

IN 1989, VAX-TO-IBM PC SHARED NETWORKS WILL INCREASE BY 16%, VAX-TO-MAC SHARED NET-WORKS BY 80% AND VAX-TO-IBM PS/2 SHARED NETWORKS BY 81%, RE-VEALS A DEC USER SUR-VEY BY RALPH HEAD AND AFFILIATES LTD.

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IMPERATIVES

Strategic systems don't have to be wildly innovative. The most effective improve nutsand-boits business activities.

MERICAN AIRLINES. American Hospital Supply. McKesson Drug. In the world of strategic systems, they set the standards, American Airlines with its bugely sociable Sabre reservations system. American Hospital with ASAP and McKesson Drug Co. with Economost—distribution systems that profoundly shaped the structure of their industries. And in testament to the strength of these systems, all three companies are still reaping benefits from these systems and adding to them after more than a deseade of use.

In the Hall of Fame of great systems, however, these three rattle around in a strikingly empty room. Similar successes, what Arthur D. Little, Inc.'s Toby Choate calls "heathtaking breakthroughs," are few and far between. The reasons of ew systems give a company long-term benefits was pointed out by economist Adam Smith at the dawn of the industrial revolution: Anything that gives one company and advantage is going to be copied by

BY MARK BREIBART



· Cover story

ers to listen to one another.

Dominating the middle of each imag

corner or on the side are little boxes"

Slanted view

But those same competitive pres-

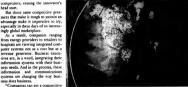
sures that make it tough to sustain an advantage make it imperative to try. especially in these days of an increasingly global marketplace.

As a result, companies ranging from energy providers to retailers to hospitals are viewing integrated computer systems not as a cost but as a revenue generator. Business executives are, in a word, integrating their information systems with their business needs. And in the process, these information and communications systems are changing the way business does business.

"Companies can get a competitive advantage by doing even the basic business things - the nuts and bolts - better," says Choate, the head of ADL's information and telecomcations systems consulting practice in Cambridge Miss. Building such systems, of course,

is no easy matter, with no magic formula. But the biggest hurdles are sel-dom technical. "Business managers are the real obstacle," contends John Framel, the former chief financial officer for Gulf Energy Corp.'s European marketing and refining division and now president of IR Concepts, Inc., an information management

consulting firm in Houston. Framel recalls a meeting at Gulf in which top executives couldn't figure out where all the technology dollars were going. "The problem was us," the former finance officer admits. "We were not paying enough attention" to the use and planning of in-Even when the executives on the



IN A HIGHLY COMPETITIVE FIELD Air Products weeks to attract and keep or with hetter service, made possible by its on-line order entry system, Haas says.

business side are paying attention, most organizations have high organirepresenting the others, he adds.

in Houseon Ir fills senior positions in IS with business managers familiar with technology issues. By moving people across functions, the company Stanted view It's like the New Yorker magazine's ensures that IS planning will be driv-en by business needs. "IS cannot, will view of the rest of the country, says Don Davis, a senior vice-president of

not and must not be remote from the business, and the business people cannot put their ideas in a mail drop and expect to have them successfully ted." declares Chester Iones. who knows both sides of the fence. Now the oil giant's general manager of technology and development, he has also worked at Shell as a marketing manager and general auditor as well as researcher and product busiis the group's own concerns, whether operations, process controllers or technologies, "And off there in the

A direct outcome of this process was Shell's initiation five years ago of point-of-sale equipment for credit authorization. "The business managbeen economically feasible before.

and shortened the billing cycle.

One firm that has managed zational barriers that make it difficult for business and technology managmesh those worlds is Shell Oil Co.

the Industrial Computer and Comunications Group at Allen-Bradley. a systems integrator and industrial controls maker in Milwaukee (see story opposite page). People in the business functions, manufacturing and information systems areas have their own view of the company.

ers were driving us to rethink the retailing cost structure where credit is a major tool," Jones says. The technology people saw that improve-ments in telecommunications and microcomputers made possible a nationwide network that had not

With the network, Shell cut down its bad debt, reduced its receivables

Other companies, too, have im-proved the bottom line by targeting

ALL MAJOR CANADIAN banks share their sutomated teller manes. Customers can thus access their accounts through the machines of any bank in the country. Similar cooperation among U.S. banks has

curred in some cities Part of the banks' willingness to work together comes from the cost-vings of maintaining a smaller ATM network of their own. But more rtant, says the vice-president of a major Canadian bank, "is that there is no sustained competitive advantage. Why spend lots of money on the basic service of getting money from a machine when your competitors will catch up with you three months later?"

were

systems. Consider changes in customer service, Strawbridge & Clothier, the \$900 million retail chain based in Philadelphia. was getting low marks from customers for its too-long checkout lines. So the company experimented with Universal Product Code bar coding. scanning and price lookups at the cash registera, says Tom Rittenhouse, Strawbridge VP and comp-troller. Strawbridge now has barcoded all items in its 20-plus

discount stores and 40% of them in its 13 department stores Scanning might not be flashy, and in fact, it's only one leg of the way toward a full Quick Response system, the retail and textile industries' version of just-in-time (see story page 28). But according to a study by Andersen Consulting in New York, this technology alone can save stores an amount equal to almost 1% of their sales a year. Not only does it speed the checkout lines and keep customers happier, but by tying to other back-office operations, it imes inventory control and reduces the labor needed to reticket goods for

sales and other prom Like Strawbridge & Clothier, Air Products & Chemicals, Inc. needed to improve its customer service. But as a supplier to other chemical producers, its problems did not stem from backed-up checkout lines. As the firm's chemicals group shifted its strategic emphasis from bulk com-modity chemicals to specialty chemi-cals, it hit "a market with more customers, smaller quantities and more omplex delivery requirements," says Terry Hass, the group's manager of ner services. The specialty market is also more

ime-sensitive. Before, orders as large as a railroad car could be delivered in one to two weeks; now, same-day delivery is routine for bag-and pail-size quantities. But the old batch order processing system, built in the mid-1970s, was too slow and unable to keep the customer repre-sentatives knowledgeable about their

customers' special wants A systems planning effort, led by the IS people, identified an on-line order entry system as the highest pri-ority for the chemicals group. In an

ALLEN-BRADLEY, A MAKER of industrial controls, is precising what is practice—that CDN is not suchasion but a strategy what is practice—that CDN is not suchasion but a strategy. Otho, a pint project that size together engineering groups with the factory's pint project that size together engineering groups with the factory's too the inventory systems as the firm's independent resident in Marwhace. More importantly, the new compared-insegrated manufacturing (CDN cell has been aimed as princip products to earther face, says Doe Drive, service VP. A Iden-Bradley's Industrial Computer and Communications Computer and Communications Computer and Communications.

Twinsburg is one of two plants that makes circuit boards for ICCG's

Twintney is one of two plants the makes circuit bounds for ICCVs from operating discuss the 10 Mp. In consomer were demandle to not be lead with nurface mount selectology CMTs, a scholage that can receive the case of the control of different locations on three different com-

neering and design (CAE/CAD) systems. Before the new system, their specifi-cation drawings ar-rived at the Twinsburg plant by truck

marked up with col-ored markers by the face mount assembly cell in the Twinsburg plant. and manuacturing and testing groups looking for information pertinent to them. They finally were sent back to the CAD system to develop punched tapes to run the computer-aided manufacturing (CAM) system. The whole process

could take up to two weeks.

could take up to two weeks.

Adding to this probe in Trunsburg's need for Flexibility. The
Trunsburg's pain makes two to 30 different persons in story production.

Trunsburg's pain makes two to 30 different persons in story production.

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The plant still has a way to go. The manufacturing group is only be-

ine plant still has a way to go. The minutaccuring group is only be-ginning to extend the lessons learned in this cell to the rest of the plant.

industry in which customers have multiple suppliers, improved service is one of the only ways for Air Products to get ahead of the pack. Its new Advantage system was connected on March to the first of 15 plants sentered around the country. It enables sales reps to fill an order, run a credit check, we if the product all end the country is the control of the country of the countr

Reps are more productive, inventory control is tighter, invoicing is expected to be faster when that module is finished.

Proof is in the pudding Distribution is another area in which technology can improve the business,

tecnitotay can improve the dissurasepecially when you can baild a syseem that tracks a product from marerial supplies too warehousing to scanner data from the supermarkers that rells you "how it is flying off the retail shelves." That's what Jim Onalfo, the IS manager of General Foods Corp.'s \$1.2 billion desarts dvision in White Plains, N.Y., put

division in White Pains, N.T., put together for a new frozen pudding goody. The system has helped the sales and marketing people increase sales roughly 10% by letting them always know where the product is and



h GENERAL FOODS' ONALFO sweetens sales by 10% by tracking product distribution from material supplies to supermarket shelves.

where the holes in the service are.

One tactic for executives looking
to integration for business benefits is
to stack a company's functional areas, such as customer service and

oneas, such as customer service and
production. It's a tactic that can pay
off handsomely.

But sometimes the issues are more
systemic, more involved with a com-

off handsomety.

But sometimes the issues are more Ch
systemic, more involved with a company's whole management culture. At
Bayfront Medical Center, for example, no single department of the hosnital tonod cut as a weak link. On too stra

s a large physical plant has to deal with, the 518-bed hospital also has people's d lives in its hands and needs to run at full tilt 24 hours a day. "So we have a level of tension that's unique," says c Chief Executive Officer Jim Albright. "We have to develop unique

of all the things that any \$150 million

institution with 1,900 employees and

Candida Wester bridge July 2007. The ways to movime people."
His nower was to break down the hospital's a relational hierarchical structure and to give people through-and the organization the power to make their own decisions. And Alberton's strength desired properties arrange depends in large particular their own decisions. And Alberton's strength of their own decisions. And Alberton's decision of their own decisions. And Alberton's decision of their own decisions. And their own decisions and their own decisions. And their own decisions are decisions and their own decisions. And their own decisions are decisions and their own decisions are decisions and their own decisions.

cause "it meets my socialization requirements for a decentralized maagement structure," he says. Some people, of course, don't want to be socialized. When Albright started work at the St. Petersburg, Fla., hospital a year and a half ago and explained his strategy of a decentral-

ized network, his top IS guy left, uncomfortable with the switch from an old-time Burroughs Corp. system. But when you come right down to it, that's the flip side integrating computer systems with the goals of the business. Companies that can't keep up with the changes need to get out of the business.

TRADE(ING) SECRETS: TEXTILES

THE TEXTILE AND AFFARE industries have loop fit the class and of insense consequences. Net, in the last several years, they moused centenive joint efforts in the lastic to instinct Oxid. Remote (OXI. in the lastic to instinct Oxid. Remote (OXI. in the lastic to instinct Oxid.) Remote (OXI. in the lastic to instinct Oxid.) Remote (OXI. in the lastic to instinct Oxid.) Remote (OXII. in the lastic to instinct Oxid.) Remote (OXII. in the lastic system date can expedient and resulters. The idea is to hald a particular system date can cost and improves these up and down the factor. No industry solved process is possible without particular for the lastic oxid distances and the lastic oxid distances are also distances and the lastic oxid distan

from yarn maker to retailer.

Though the committees' work goes on, competitive juices still flow.
Jesse Johnston, director of corporate information systems at textile
mendificatures fullkien & Co. in Sprathage, S.C. says what at the linkage council meetings, which he chairs, "We limit discussions to stanendred and procedure and ser careful not to discuss trate secretic." Part of
the reason for this secrety is a consciousness of satirtust regulations.

But part of it is that Q8 is near a company's hearbest. "I wast to know

how I can make the industry better, but I don't want to let people know exactly what Milliken is doing, or how fast I'm doing it," be says.



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crime

BY ANN DOOLEY

ERSONAL COMPUTER network security is everybody's business. Unfortunately, few companies see it that way. To be effective, information security has to be part of the corporate business plan, not just the responsibility of information systems professionals. Although a recent study of chief executive officers by use by end users are kept secure. Ae-To find out the state of personal computer network security, Compu-terworld Focus on Integration concording to security experts and IS Computerworld showed that 91% of hose ton executives consider corpoprofessionals, what companies need ducted a telephone survey of 214 IS rate data security to be a major conis education and a mandate from the executives in charge of security in

cern to them personally, they don't top that end users must treat infor-mation in a responsible and ethical act on that concern. Security issues are left to the IS staff. manner. Instead of viewing network security as a computer problem of That's not all bad, of course. IS hardware, software and commi nagers have the know-how to imment security measures. But in tions, companies must see it as a busiany cases, they lack the political ness problem. The organizations that clout and authority to make sure that see it that way will have more effecon and networks in daily tive security, experts agree.

Whom do you consider to be a threat against your network?

internal employees \$1.6% Outside harbors 17.7%

laterate 8

rus the

al their organizations. On the spertion of the organizations of the speriod of 59% of the IS respondens felt that security has not increased as a priority for top management, even with the recent vitus states. The 41% who saw a shift in priority reported that corporate executives were allocating more money, resources, time and education to security.

At Chicago's Stone Container Corp., for instance, a security project

At Chicago's Stone Container Corp., for instance, a security project that had been on the back burner is now being actively worked on because of the nationally publicized virus threats. And additional money will be coming for contin-

will be coming for continued implementation, according to Roxolana Poluchowicz, commanager at the container manufactur-

ing company Although \$1% of the IS executives surveyed said they had adequate security for their data and PC networks, only 64% have a formal security plan in place. Of those with a formal plan, the average length it has been in place is four years. Many security experts maintain that unless a plan is constantly updated, it is out of touch with the current computing practices. "Halfway security is worse than nothing at all. You get to rely on it but sometimes without reason notes Robert Groll, vice-president of marketing at Microframe, Inc., a se-

curity company in Cranbury, N.J. The only way to make a network totally secure is not to use it, one IS manager maintains. A more practical solution is to change people's attitudes toward security issues through corporate mandate. Employees can almost always find a way to break into a network, so it is up to IS management with top executive backing to make sure employees are aware that tampering with a network is wrong and to explain

the risks and repercus of such an action. "We need a proactive response to crime not the current reone." er. Raymond plained Raymond Humphrey, director of cor

rate security for Digital Equi-Corp., at a security seminar in Bos-ton. "You can't think of it as security. Think of it as management," he

Networked PCs pose a particular-ly acute security risk. PCs are no longer foreign objects to end users. In fact, an estimated 22.5 million PCs are spread throughout U.S. or-ganizations. About one-fifth of these are networked, and that number is expected to grow dramatically. The

push for connectivity, interoperabilive and transportability puts precious data more at risk. IS' security problems are compounded by integrated systems with more access points. An integrated system requires an integrated security system - a combination of top brass backing, written policies, consistent penalties and so on, notes John Muir, president of Enigma Logic, Inc., a security company in Concord, Calif.

The Integration survey also showed that often little centralized control exists for data on PC net-

tem, however, is from the employee

Next on IS respondents' list of concerns was intentional crime by employees. Nearly 75% of all computer crimes are reportedly committed by insiders.

The insider's motive is not necesarily monetary gain. Some employees may try to corrupt the network for the fun of it or to beat the system. The biggest threat to a network sys-

with a grievance against a manager or It is to management's benefit, therefore, to create an atmosphere in

What network security methods is your organization using?

works. Seventy-eight percent of the respondents said that individual dements claim ownership of their data. According to the survey, only 17% said that centralized data centers

owned PC network data. No matter who owns the data keeping it accurate and maintaini its integrity is considered an ev more serious matter than intentional security break-ins by a three-to-one margin, survey results showed (75%

which employees won't want to inflict damage. In many cases, this means a drastic change in manageing few emment practices, something few en ployers may be willing to consider. lents also men

Several IS respon ned they were concerned ab data theft from competitors. Jan Dean, IS director for the Energy S vices Group, a maker of eng rs in Mo Ohio, discloses that the cor has prosecuted several emp

for taking information to competi-

Most of the IS executives surbreaches in their networks or corporate information systems. One IS manager in Colorado admitted that his company hadn't had any security problems — that he knew of. Among those who claimed not to have security problems, almost all daded "yet."

rry proceeds, amoust an issues yet. How did those who have had security breaches deal with them? Responses included dealing directly with the person, firing the person, alerting the police or FBI or taking technical or organizational action, such as restricting further access, regularly changing passwords or establishing a corporate security details.

For John Clark, assistant director at insurance company Cigna Corp. in Philadelphia, any potential problems would be handled "very quietly."

The quiet approach, however, didn't work for John Maday, an IS manager at Fairmont Railway Motors in Fairmont, Minn. Someone once tried to walk off with software from the railroad mantenance equipment company, "So I hollered at him."

What security guidelines have you established for end users?

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Maday explains.

One priority to consider before implementing security procedures is

to assess how much security is actually needed. The trade-offs between productivity, cost and convenience can be monumental if the information involved doesn't have to be secited in the first place. DEC's Humphrey advises IS executives to

Soli Mandy, an 15 can be monumerant if the information in Railway Mones tion involved doesn't have to be sen. Someone once cliend in the first place. DEC's vide software from Humphrey solviess IS exceptives to enance equipment prioritize the areas of risk and then hollered at him," protect the most important. "You

will never each fail-stafe. The claims.
In the frangeries story, IS execute usine as add they protect their information in various ways. Nitesy-eight percent estait they not their information, Tyll was said trail, all 8% lillow only read, not write, as cass and 25% use encryston. Passa words are most commonly used to limit fell second and offerin each. But passwords are easily discovered or breadbast, rately changed, here one breadbast, rately changed, here one breadbast, rately changed, here one to repeat earry trict.
The challenger is to materian and each of the common of the commo

The challenge is to maintain an effective flow of information along a network without restricting users. With PCs, the user becomes the programmer, operator and security officer. Companies can protect against specific entry points and specific types of invasion, but they can't protect it all, or it would be impossible to get any work done, one IS execu-

tire complained.

A major problem is that organizations are installing PC networks to
praighly that many of the orderly development processes are being overlooked. As one IS manager states,
"It's hard enough keeping up with
the various networks that are popping up all ower the company, let
alone trying to implement security."

The processes are proposed to the processes of the
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PC LANS CURRENTLY PROVIDE little inherent security. Companies commonly use logn security, although security experts contend that lognos provide limited protection. And frequent password changes and encryption procedures all impact the way people do their work. Another way to limit security threats its to restrict access to PC LANs to sormal business boars and only to users with a need to know certain

Hardware protection, such as physically isolating PCs, is just as important as protecting software. Each physical network node is an access point. These access points include not only the PC but also servers, bridges access the protection of the PC but also servers, bridges accession of the PC but also servers.

point. These access points include not only the PC but also servers, bridges, gateways, moderns, network printers and cabling. Raymond Humphrey, director of corporate security for DEC, says that eliminating bulletus boards, knowing the origin of software and get-

ting rid of remote documentation and public networks can all help secure a system.

Some companies protect themselves by not using out-of-office disks,

Some companies protect themselves by not using out-of-office disks, limiting the transmission of executable programs over networks, not booting hard-disk systems from a flooppy unless it is the original, not executing programs of unknown origin, not using network file servers as workstations and never adding data or programs to system master disks.

The Integration survey found that to protect against computer viruses, 25% of the IS respondents said they use prevention devices, and 4.5% use cleanup devices. A whopping 62% use no such devices at all.





Westinghouse
Management Systems London

all them visionaries. Call them innovators. Call them executives who live their professional lives on the horizon line of technology. Before there were industry buzzwords like interoperability and heterogenous computing, there were individuals who saw the need to interconnect information and the way it was being delivered.

"Visionaries see the whole view," says MIT professor David Clark, who is also a senior research scientist at the school's Laboratory for

Computer Science. "They see computers as only one piece of the puzzle."

Typically, visionaries are not from a company's core computer culture, he explains. And just as typically, a company's senior management finds these innovators elsewhere in the corporation or outside of it. Observes Clark: "Innovators

are those individuals who are not entrenched doing things the old way."

To integrate their computing resources, Is professionals must have a vision of restructuring a business and, accordingly, the platforms on which to achieve their companies' goals. Viewing integration as the one key platform, Compartnerworld
Fiscas on Integration interviewed a number of systems innovators who dared change the systems status quo.

visionaries

BY HELEN PIKE



"IT FELT LIKE I HAD LANDED FROM Mars. Everyone was thinking decentralized," remembers Elaine Bond when she set foot in her new job at Chase Manhattan Bank in 1981

after 24 years with IBM.

"At IBM, we had already gone through decentralization and had been integrated. At Chase, though, integrated computing means centralization, [which] was the furthest from anyone's misd," she says.

emerations, which was the transit from anyone's misd," she says.

Yet something had to be done, explains Bond, Chase's senior vice-president for corporate systems, because with different computing resources in 100 offices worldwide, "Chase

resources in 100 unter working was, Cassstill had gobs of interdependencies." In the challenge became how to make all hose parts appear to be a whole without reconsolidating everything, Bond says. The solution was to network mechines from Wang Laborstoger, Digital Equipment Corp. and IBM into "a big distributed environment by interconnecting distributed environment by interconnecting

electronically all those computing nodes.
"I understood technology from [the areas of] research, applied technology, sales and marlecting, product development, operational and internal use," says Bond, 53, of her IBM years, "I've always been a manager of technical activity and have always had a bias to look at this

stuff from a business perspective. Bond's blueprint came from the telephone system. "It has a magical capability. You can get to any person anywhere in the world for as long and as fast and in any language on any subiect. The only agreement is that they have to want to talk with one another." She likens data want to talk with one another. She inventously processing nodes to a phone company's central offices. Both are placed around the globe, are interconnected and are transparent to the user.

"When you begin putting power at the desktops with telecommunications, you begin to see what mainframe work you can get done on a PC," she says about distributed processing. "Telecommunications is already an inte grated system with all the different perworks."

MICHAEL MISTROVICH, 46, OVERsees an integrated information initiative aimed

ysis, doctors' analyses, radiology reports, phar-maceutical purchases and administration. According to military classification, more than nine million people are eligible for DOD care, and many, under the proposed computing plat-form, will receive their care from 168 hospitals or more than 500 DOD-ocerated clinics

abimbboom He envisions a "one-stop shopping" system, for example, where there will be no waiting for prescriptions to be filled because the necessary data will be automatically entered into the centralized system from the examining rooms. No

lost lab slips. No missing X-ray reports, Special diets at the touch of a keystroke. In essence, the system is a central patient database complete with multiple security and ac-cess controls. The DOD is using DEC equipment, along with twisted-pair and fiher-optic

cabling for data transmi The Composite Health Care System is subject to congressional review, and testing has begun at 14 hospitals worldwide.

IN 1980, A 36-YEAR-OLD BOB EVANS visited Xerox Corp. in California and got a chance to tour its famed Palo Alto Research Center. There he saw a demonstration of peerto-peer networking that fit computing power to the needs of the organization instead of mak-ing the organization change its computing architecture. He also saw computer programs

that used icon images. Evans was intrigued with what he saw but didn't see an immediate way in which he could bring the new technology back to El Paso Nat-ural Gas in Texas where he was the vice-president of information systems and product ac-

Four years later, he did.

Evans responded to a a corporate cut costs and deliver more com cut costs and deliver more computing by networking minicomputers from Wang Laboratories. The plan involved a risk — more parameters of the plan involved a risk — more parameters and El Paso's dominant supplier, IBM.

"There was no other commercial role model at the time."

at the time," Evans says, and recalls asking him-self, "Can I run the whole company on a group of networked computers?"

As an experiment, Evans took the largest mainframe application he had and put it on a mini. "It ran," he says. And so did Evans — he mini. "It ran," he says. And so dud Evans — he was off and running with a plan to network 12 minis, each one dedicated to an applications area. From an IS budget totaling \$24 million in 1984, Evans got his budget down to \$16 mil-lion in 1988 through networking.

Given the vagaries of the energy industry,



Department of Defense hospitals and clinics ound the globe. It is called the Composite Health Care Sys-

tem, and, according to Mistrovich, deputy as-sistant secretary of defense for health management systems, it will establish an interrated computer architecture to take the DOD beyond the year 2000.

Mistrovich is talking about the range of da outpatient/inpatient care, laboratory anal-

The Terminal O Arrived A



f The '90s Has Bit Early

Wyse introduces the WY-150. They always said there would be such a terminal "someday". It would have the flexibility and connectivity to operate in virtually any computing environment, while meeting the most exacting ergo-nomic requirements. And, it would deliver those advantages at an affordable price.

"Someday" is here much sooner than expected. It's called the Wyse WY-150, a breakthrough in terminal technology that will set price/performance standards for years to come.

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with a wide range of operating systems. Including UNIX/XENIX, MS-DOS. Concurrent DOS, PC-MOS, and

PICK. With a choice of three keyboards And typical of Wyse, the WY-150 does it all with stylish design, at a price that's also attractive.

The WY-150 also sets new ergonomic standards. Its 78 Hz refresh rate eliminates any hint of flicker. Just as overscanning and a bezel that matches the soft, paper white phosphor erase distracting borders. (Amber and green phosphors are also available.) The oversize 10x16 cell makes each crisp character stand out vividly.

The WY-150 is also part of SystemWyse. It links effortlessly with Wyse PCs and multi-user platforms to create uniquely integrated and cost-effective solutions. Everything is designed, manufactured, and tested by Wyse to work together. And it's all backed by the service and support of the world's leading

independent terminal maker.* Only one question remains. Now that the terminal of the 90s is here, what are you waiting 1800-GET-WYSE for? Call for more information.

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WYSE

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the minis have allowed the \$1.2 billion gas company to keep up with business changes more quickly, he adds.

With a numbler computing environment, no one would ever accuse Evans, who uses an Apple Computer, Inc. Maciatosh in his office, of being entrenched in his company's computer culture.

PHYLLIS GARDNER WAS LOOKING for new managerial challenges when she went to work as a kind of high-tech amicus curiae to the U.S. Department of Justice.

Her plan for the department could be viewed as a form of integration justice brought to the information system that supports Uncle Sam — a system that in 1980 was still largely conducted on typewriters and with IBM mag cards. "A plan started to develop in my mind on how to synthesize all of it," says Gardner, who was named director of the dearrment's Office.

of Management Programs.

"The legal profession can really embrace technology," she adds, referring to the document-intensive needs of lawyers, and in this particular case, of attorneys in the Civil Division of the Department of Justice.

Local-srea networks became the basis for Gardner's strategy to put a workstation at the fingertips of every Justice Department lawyer. Under the plan, called Amieus after the Latin word for friend, suers accessed information by modem from Lexis, the electronic law library, and from databases of agencies' rules and resu-

lations, court dates, legal files and briefings resident on the host mainframe. They were able to

output their work on printers.

Amicus grew to support 250 attorneys, handling upward of 50,000 civil cases. Between 1983 and 1988, Amicus saved \$21.2 million in attorneys' services and \$5.4 million in clerical work, according to Gardner.

work, according to Gardner.

But Gardner, 42, is a modest manager when it comes to information systems, despite being



Inc. and Carnegie-Mellon University's Graduate School of Industrial Administration for her work at the Justice Department. She is now the executive director of Steptoe & Johnson, a law firm in the capital, which hired her to implement a vision of high-tee-he efficiency.

"THERE'S NEVER BEEN SO MANY very strong technology solutions and confusion over how to implement them," observes Mark Teflian, technical planning and systems engineering vice-president for the Covia Partner-

over now to implement thems," observes Mark Teflian, technical planning and systems engineering vice-president for the Covia Partnership. The company has used computers and networks to grow from operating a simple sirline reservations system into being a wordshed travel distribution company, owned as a partnership by six different arithms.

"No one from a transaction processing world was moving in this direction of distributed processing," Terlian says about the movement from batch to interactive mode for Covia's Apollo reservation system. "Our need to



Heckuva way to run a network.

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integrate came from our need to distribute our data." wide E-mail messages from Digital imaging and or Teflian, 32, is halfway through implement enhance document work.

ing a 10-year plan that calls for a three-level, peer-to-peer-based architecture that preserves old applications while allowing for the introduction of new ones across a workstation platform of IBM Personal System/2s using IBM's Systems Network Architecture and LU6.2.

Systems Network Architecture and LU6.2.

An electrical engineering student in college, Teflian describes the exhaustive conversion plan as a "resystemization."

OUR INNOVATORS PEGGED the following technologies to propel integration:

The 15 function will take on an increasingly basiness-oftened character and will use AI workstations to get the job done.

 Multiple windows will push workstation technology.

The power of new microprocessors will further bolster the windowing environment, allowing for access to multimedia.
Object-oriented programming techniques will solve the software bottleneck at the appli-

cation-code level.

Software will emerge that will bridge worldwide E-mail messages from multiple vendors.

Digital imaging and optical disk storage will



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To improvie network financial planning, CL/ SUPERSESSION's Network Accounting Tacility provides complete activity recording, incidently all network logous, session initiations/terminations, and traffic volumes for pretice charge-beta billing and usage auditing. And for at a-glance monitoring of multiple sessions, our new windowing feature will let you were sessions sale by side on a single screen. What's more, you'll never compromise, on security. CL/SUPERSESSION interfaces.

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BEHIND THE DESIGNE FORCE of Dennis Conner, senior director of IS, and his staff, Greyboard Lines' integration strategy moves about.

42 Computerworld Focus on Integration



BY STAN KOLODZIEJ INTEGRATION STAFF

ROM DENNIS Connor's office, you can see a lot of country. For miles, lines of darkly paved highway, very straight, cut across neatly furrowed farms. Above it all is plenty of sky.

Connor is at the center of it all, literally. Situated in West Des Moines, Iowa, Connor and Greyhound Lines, Inc. are at the very heart of America. And now Greyhound Lines wants to be at the heart of the transportation

Greybound Lines wans to be at the heart of the transportation business spin. The senior director of 15, Connot pisted Greybound Lines I wan a year ago. He had become the denote upper form of the lines of the law of the lines o

pects of its business. pects of its business.

The venerable 7-s-year-old bus company was synonymous with
the freewheeling rise of posswar motoring across America. But in
the past decade or so, Greyhound has often become equated more
with decline and outmoded ways to travel.
Losing much of its business to airlines, which cut their prices



IN 1931, THE MACK TRUCK CO. was asked to build a coach for Greybound; the realt was a luxurious bus (above). Passengers relaxed in mobair seast with bourhoir stuffing, as side curvains kept bout readied dust and glaring runlight. The Mack Bus was equipped with builders agic took absorbers and a six-cylinder engine for mooth ralling.

MOTORING
GREYHOUNDS PASSENGER
MILES, WHICH ARE THE YARDSTICK BY WHICH THE COMPANY MEASURES BUSINESS

NY MEASURES BUSINESS GROWTH, HAVE DECLINED SINCE THEIR HEYDAY IN 1980. BUT SINCE 1987, THEY APPEAR TO BE ON THE RISE AGAIN. THE FOLLOWING IS A BREADOWN OF PASSENGER MILES, WHICH INCLUDE BOTH CREYHOUND AND TRAILWAYS FEGURAYS

• 1979 — 10.9 BILLION • 1980 — 11.2 BILLION • 1981 — 10.4 BILLION

• 1982 — 10.3 BILLION • 1983 — 9.0 BILLION • 1984 — 8.3 BILLION

• 1984 — 8.3 BILLION • 1985 — 7.3 BILLION • 1986 — 6.1 BILLION

• 1987 — 6.3 BILLION • 1988 — 6.8 BILLION following deregulation of the airline industry, Greyhound's image also declined. Its bus terminals, located mostly in the center of U.S. cities, suffered during the period of general urban decay in the 1970s. Greyhound bases, through a lack of strict maintenance schedules, also began to look shabby.

Beginning in 1981, Greyhound suffered through six straight years of decreasing passenger miles (see box this page), which are the number of miles ridden by paying passengers of and a yardstick by which Greyhound measures business growth. The general image was of an industry and a

company in bad health.

The first step toward Grey-hound's recovery came in March 1987. At that time, three investment partners, led by Dallas investor Fred G. Carrey, parchased the troubled Grey-hound Line division from its

Oreyhound Line division from its parent, Greyhound Corp, a holding company with interests in such areas as airline food estering, personal care products and a cruise ship line. Connor credits the new owners with pushing quickly for technological change at Greyhound Lines.

That's the ticket

The first target was the pivotal passenger ticketing system. At the time, of Greyhound's reservations system, a which used IBM point-of-sale (POS) terminals, was too slow, taking mintutes to generate tickets while passenders often waited in long lines.

The number of variables involved in but reservations and pricing can be coromous. But spacengers can get off at any number of rowns between two major cities, they can board at a Greybound feeder route or perhaps from another bus line, they can get off for a while then get back on and 50 on. The POS systems located at a contract of the price of the price

major bus terminals across the country bogged down under these logistical burdens, and business flagged. New muscle was brought in last year with the Gateway reservations system. The system has seeded about 500 networked AT&T 6300 and

6312 personal computers across the country at 152 Greyhound terminals.

The turnaround brought about by Gateway has been dramatic, Connor

says. Passenger tickets and sebedules can now be generated four to fire times faster than with the old POS system. It has also broken open the world of pricing levels. Connor claim that Greyhound's reservations system is now capable of handling approximately. In million econômications of fires and destinations of fires and destinations of the contrast, the old POS system could only handle 107 combinations.

By way of Dallas

The firm's Greycom network hand dies U.S. bus seheduling, linking all Greyhound dispatch offices through the Des Moines data center where an IBM 3081 is located. Channeled through the mainframe, on-line dispatch data arrives at a computerized

operating center in Dillas and enters
a master schedule database. The Daldlas center is manned 24 hours a day
and is the nerve center of Greyhound's bus movements.
Greybound measures the efficien-

Greybound measures the efficiency of its scheduling process by analyzing the number of bus miles each passenger travels. Greybound feels that by streamlining its route schedules, it can reduce unnecessary miles logged by its buses.

logged by its buses. To schieve this god, Connor is working with Andersen Consulting on a scheduling tool that will provide on a scheduling tool that will provide ties. The tool will eventually interactivith on on-line master schedule database in Dallas, By this summer, Gerybound expect to install a network bridge that will automatically from its Gartewy reservation system and its telephone information enterest (TiCa, bypassing the main-enterest (TiCa, bypassing the main-

s frame in Des Moines.

Along with Greycom and Gateway, the TICs, locused in Omaha,
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THE 1947 SILVERSIDES BUS (above) was made of ideak stainless steel and elasminum and claimed a number of firsts it was the first fully ein-conditioned Greybound has and the first bus with a retractable entrance door and gear shift enclosed in the steering column:

According to Connor, the master schedule database in Dallas will make a natural fit with the TICs to make sure that center operators have the latest route and pricing changes.

Greycom, Gateway and the TICs will all be networked and interfaced one day, Connor says. The linking of TIC with Gateway, for example, will enable passengers to charge advance-purchase tickets with major credit running Unix.

cards.

An integral part of the Greycom system is the Bas Parts Inventory Control System (BPICS), which will keep an eye on maintenance of Greyhound buses. With Greyhound's purchase of Trailways Lines, Inc. in July 1987, the number of Greyhound buses rose pearly 50%, and with the

Greyhound's fleet now tops 4,000.

The BPICS system is centralized to the BPICS system is centralized to the BPICS system is centralized to the BPICS system is the BPICS system in the BPICS system in the BPICS system is supported by the BPICS system using limit compared to the BPICS system using limit compared to the BPICS system is the BPICS system in the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is centralized by the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is centralized by the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system is supported by the BPICS system in the BPICS system

The current integration strategy a might already be helping Greyhound turn the corner. In 1987 and espelicially 1988, Greyhound, boosted somewhat by the Trailways acquisition, posted its first gains in passenger miles since 1981.

July 1987, the number of Greyhound buses rose nearly 50%, and with the purchase of an additional 200 buses,

EASY RIDER HO TYPICALLY RIDES

WHO TYPICALLY RIDES A
GREYHOUND BUS AND FOR
WHAT REASONS GREYHOUND
LISTS THE FOLLOWING AS THE
CHARACTERISTICS OF THE
TYPICAL GREYHOUND BUS PASSENGER.

SHE IS FEMALE.
 SHE IS BETWEEN 16 AND 24

YEARS OLD.

• SHE HAS SOME COLLEGE EDUCATION.

SHE HAS NEVER BEEN
 MARRIED.
 SHE IS TRAVELING ALONE.

 SHE IS TRAVELING ALONE.
 SHE IS VISITING FRIENDS OR RELATIVES.
 SHE IS FROM AN URBAN

 SHE IS FROM AN URBAN COMMUNITY.
 SHE IS EMPLOYED FULL TIME.

old Greyhound Lines referred to as a young company, but it's all in how you look at it. Doug Desch, manager of data communications at the bus company, says the new Greyhound is distancing itself from the old in several network-

ing ways.

The first distinction was consolidating data communications activities under one roof, following the purchase of Greybound

ing the purchase of Greyhound Lines by an investor group in 1987. "Data communications respon-

sibility used to belong to the application group that owned the function being networked," Desch-gealls. "People would implement a data communications project, and then at a certain point they would call

technical support people in for help."

Desch says that at the time of the purchase, his group acted basically as a service bureau for parent Greyhound Corp. Greyhound Lines was treated like any other division serviced by the centralized datacom func-

as a service buttest not places occupionate Corp. Cotypolate Lana was treated like my other division serviced by the centralized datacon function.

"The problem was there were so many people dabbling in networking without the proper technical expertise, and there were no procdures for making or requesting communications changes," Desch ex-

dures for making or requesting communications changes," Deck explains. "We had to be called in a for to straighten projects out." Also part of the plan for the "new" Greyboard Lines is a big putal coward network management systems, he says. The increase in networks and the linking of those networks puts a premium on network to the project of the project of the project of the protroplesshooting and on levering track of the increasing amount of net-

work equipment, he explains.



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Dallas, Texas

Tim: The first time we met, you had an ambitious plan to completely automate your scheduling and ticketing operation. I was astonished at its complexity You have 165,000 combinations of fares

that a customer could ask for. Craig: Ticketing automation was part of our master plan to remake Greyhound

from the ground up. You can see why Dennis: Our old ticketing system wasn't good enough. We had trouble with volume and updating the point-ofsale terminals. Frequently the agents

would have to thumb through thick manuals to get fare and schedule data. Craig: It took three or more minutes to issue a ticket, which was not acceptable. You helped us design our ticketing solution based on AT&T WorkGroup Sys-

tem computers. Tim: And today you have happier customers!

Dennis: Ticketing is five times faster. Customers tell us they get faster service in hus stations than airmorts. These lines move Craig: Since we can't afford downtime, your top-to-bottom commitment to supporting the total solution sold us on AT&T. We saw you as a partner for computer solutions, not a PC vendor. Anyone can sell PCs or minis.

Dennis: You were the only computer company with a nationwide service network and the willingness to respond to us on demand.

Craig: We won't stop with passenger ticketing. Distributed computer networking is our leverage to improve package express service in a major way

Dennis: We are tving our networks together. Whether it's packages or people, it's one screen.

Tim: And the distributed solution includes the bus scheduling system running on both your Tandem computer in Omaha and the IBM mainframe in Des Moines.

Craig: AT&T system is open. And it has growth capabilities. so that when we see an opportunity, we

can take it. I'm very proud of what we've done. As our motto says, "the hus is



OS/2 may have all

the piz-

zazz. but

MS-DOS seems to

have all

the users.

SHOULD I

stay

OR **SHOULD**

I GO?

ONVERTING FROM DOS to OS/2 is a very traumatic and expensive experience. and when faced with the task, inertia wins out," says Rich Finkelstein, president of Performance

Computing, Inc., a Chicago database consulting firm. Inertia is hardly the stuff of which than a viable alternative to MS-DOS. great corporations are made. But the "People buy applications, not op-erating systems," says Jonathan Yarfigures bear him out: Most information systems executives are staying mis, an analyst with Gartner Group, with their current operating system Inc., a market research company in mainstay, MS-DOS.

Stamford, Conn. "There are no busi-The reason IS executives are not ness applications out there to make people switch to OS/2. And the or-ganizational and hardware costs necflocking to OS/2, with its promises essary to migrate to OS/2 are ridiculons

Despite IBM's continuing efforts to breathe life into the operating sys-tem, which are said to include OS/2 memory rebates and OS/2 applica-tion discounts, OS/2 sales have fallen leader, Wir. He but written for a veriety of well below projections. And according to recent reports in the press, of

of multivendor connectivity, multitasking, greater memory capacity and so on, is a lack of application soft-ware. The dearth of OS/2 application software relegates the new oper-

ating system to more of a curiosity ZABLEY to a free-lance writer loving in Rhine-

computer publications BY CRAIG ZARLEY



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Attn: Ann Dooley Computenworld Focus on Integratio 375 Cochituate Road Framingham, MA 01701-9171 the more than 200 software develop ers claiming to have shipped OS/2 products as of Jan. 1, about 44% have either delayed or abandoned their OS/2 development efforts.

And while IBM's Officevision

products, the first true OS/2-based apolications that take advantage of iprocessing and large memory have given a boost to OS/2, their full impact on the market will not be known for awhile. The products will not begin shipping until the fall, and their announcement does not guaran-

tee a quick implementation.

Happy medium New York But a middle ground is emerging be-

tween the hype and the cynicism as IS managers plan how to integrate OS/2 into their organizations. For starters, almost no one is rushing to upgrade system hardware to run OS/2 on individual workstations.

Industry observers agree that users need at least a 16-MHz Intel Corp. 80386-based personal computer with 4M bytes of random-access memoty to run OS/2 at acceptable speeds. Even if applications software were available, the cost of upgrading thousands of PCs is prohibitive.

Instead, the first OS/2 applitions will be server be With OS/2 installed on local area network servers, companies can

rake advantage of OS/2's multitask-ing and its ability to address up to 16M bytes of memory (as opposed to 640K for MS-DOS) without incurring the expense of installing the op-erating system on individual workstations If OS/2 does supplant DOS in the business application arena, it will come on a case-by-case basis with en-

tirely new systems developed rather than porting an existing DOS applin to OS/2 OS/2's missing pieces continue to dunt development efforts among both software vendors and in-house corporate development staffs. IBM and Microsoft's OS/2 Presentation Manager, the object-oriented interface designed to match OS/2's power

with ease of use, is a prime example.

Presentation Manager wasn't even included in OS/2 until last October when IBM released OS/2 Extended Edition 1.1. Furthermore, direct support for Presentation Manager-based queries won't be a part of OS/2 until this fall when IBM ships Extended

"We'd buy OS/2 right now, no matter what the cost, if it offered a Presentation Manager interface and Co. in New York. SQL queries to local and host datasays Ray Jordan, manager of consulting services in the corporate information services division at

Pfizer, Inc., a pharmaceuticals firm in Indeed, it is as an SQL database multiple, concurrent host database server that OS/2 seems poised to

DOS is the boss

DOS will hold a commanding lead over OS/2 in worldwide unit shipments NA.

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make significant inroads. SQL allows users to access data

from a variety of host systems without regard to where the specific data may reside and without knowing how to execute queries on the dispa-rate databases. Because corporate usrate databases. Because corporate us-ers may need to sort through huge files on multiple databases simulta-neously, OS/2's multitasking and ad-vanced memory addressing capabili-ties teamed with SQL make the new operating system an ideal candidate for future corporate database servers.

IBM's OS/2 Extended Edition 1.2, will add server capabilities to OS/2's Database Manager. In addition, the Ashton-Tate/Microsoft/Sybase SQL Server has just hit the market, joining Menlo Park, Calif.-based Gupta

Technologies, Inc. and College Park, Md.-based XDB Systems, Inc., which are already selling database servers for DOS and OS/2 "If you want a combination of a

graphical user interface and come nication to mainframes, then OS/2 is the answer," says James Johnson, vice-president of business program strategy at The Equitable Insurance

Johnson is currently supervi an OS/2 application development effort. While he declined to offer specifies, he hints broadly that the project involves providing a common Presentation Manager interface to

> "Just think of the increased capabilities that could offer large companies," he says. For insurance companies, for exple, a common interface to all databases would enable an adjustor to get a complete client history without having to use different command sets for each database in which information on the client resides. The productivity gains would

Johnson explain OS/2's missing pieces and a lack of third-party application software have done little to

dampen Johnson's enthus for the operating system. He's sticking to his timetable of having The Equitable's first OS/2-based apcation up and running by the end

of the year While OS/2 is gaining greater acceptance in large corporations, its in-troduction inches along on an application-by-application basis rather than-sweeping aside an old standard for a new. And no prudent software developer is about to ignore the more than 20 million DOS machines as evidenced by the spate of DOS product offerings at the latest Comdex show.

Still, there are those who maintain that OS/2 will be the future computing standard. "OS/2 will triumph when people understand the capabili-ties of the operating system and pur-chase new machines for new applications," explains I Computing's Finkelstein.

completely swamp any cost is-

Computerwoold Focus on Integration \$3

allied

FORCES

These days, It's unite and conquer

BY STAN KOLODZIEJ

N MICHIGAN, SEVERAL rival engineering firms meet, share engineering and computer-aided design data across their computer systems, then make a mutual bid on a production contract from one of the Big Three automakers.

In Minhatura, a credit card owner keys mergers, and they needy involve one company to one numbers into a measured selfer mechica esquiring another. But with a increase in such (ATM) and updates his frequence-filter miles. He is resulted to the the featurine he recently that contribute mergers and equiditions will be a produce of the three t

intentry of her trip, including flight and train

"There is a readers to arrive as what I call
stochedate and hoot for receivations. It is not seen close desire," he says. By one destiny, Dividient days before her trip nor is the at a true! son it referring to the meanal software coding
agones, the is at I chine Altrine ticket bood and programming that methes partners' sysato Offster, and the is ready to bound her flight.

There are just a few camples of how sime means typing business destinies with network-

vances in software and networking are making and analysis of software software and more practical for many companies or form strategic marketing and information argues, makes more likely the merger of companies to form strategic marketing and information panies that start out as strategic allies.

Business opportunities, combined with economic and the companies of the start out as strategic allies.

technology alliasces for mutual benefit.

Such alliances are often market driven and mostly temporary, taking advanage of opportunities that can be optimized only if both for wheel, alliance partners can leverage each other several) parties join forces. These are not extenhology for manual benefit and systergy.



The arrangement between Clinbank Visa and American Airlines is a elassic example, and American Airlines is a elassic example, the periodicular Visa commoners to grant them extra produced Visa commoners to grant them extra frequency filer miles. Clinbank Visa uses data from American's Schen network to help it increase its customer base. It would have been foolid for American or Clinbank to set up separate networks and marketing surcurars to combine the two industries. Leveraging each order's network and software expertise turned out to be a better choice.

Another example is Prodigy Services Co., a join videocex venture between IBM and Sears, Roebuck and Co. For less than \$10 a month, Prodigy subscribers with IBM Personal Computers or compatibles can access on-line home shopping and banking services from Sears. The increasing speed and use of computer networks, the speed with which data can be managed by such tools as relational databases. and the move to interchangeable network standards have made the integration of separate corporate computer systems more practical. In turn, integration is opening the window to new cooperative marketing and product develop-

unt, imegration is opening me window to the cooperative marketing and product development opportunities among companies. Many of the organizations joining in such alliances, in fact, may often be competitors. Usually, such firms have decided that the possible exposure of business secrets to alliance partners is outweighed by the benefits of working together. Such as cepario is happening in Michatogether. Such as cepario is lappening in Micha-

togetter. Joen's security to suppening in otherigns among some rival engineering firms.

In the aftermath of the automotive market slowdown a few years ago, the Big Three sunmakers have been busy cutting fat out of their internal operations. The result is that the Big Three — General Motors Corp., Ford Motor Co. and Chrysler Corp. — have now decided to job out much of their surfemovire design and entineering two kto outside firms.

In this feeding frenzy, however, many small engineering outfits are unable to compete with larger engiog and consulting firms. Michigan's Department of Commerce has stenged in to try to even the odds

The department's Michigan Modemization Service set up the Flint River Project in 1988, a cooperative of several small Michigan engineer-

ing companies that have joined forces to do battle against their larger coun-Ordinarily, these engineering firms would be at each other's throat competing in the high-risk engineering environment. By joining together, however, they reduce those risks and benefit against larger engineer-

ing firms.

"By linking their design and production capacities," explains John Cleveland, director of the service, "the [member] firms will be getting production efficiencies and an entry

nto more vertical [engineering] man kets they might not be able to handle senarately. The association will give them large-company clout with small-company creativity."

Oulck turnaround Initially, Cleveland says, the Flint River Project will exchange computer-aided designs (CAD), data and

programming expertise to work on various projects for the Big Three automakers, defense contractors and other industries in Michigan. By pooling an inventory of engineering

to link together customer

charge receipt data across

designs, project partners will be able to quickly turn around customized signs for potential clients.
The cooperative already has beat-

en out other large engineering firms for contracts. For example, Greece, Turkey and other allied countries have awarded the group contracts to replace aging parts for military vehi-

The designs and products that come out of the cooperative will stay within the group; profits will be shared by the companies that have actually teamed for specific bids.

Second chance

Strategic alliances do not always involve companies coming together for the first time. Established alliances can also undergo profound changes as new opportunities arise from advances to networking and other com-

puter technologies. In Dallas, electronic data interchange (EDI) is changing retail giant J. C. Penney Co.'s relationship with

its suppliers. EDI oetworking has been used for several years by the retail clothing chain to streamline the movement of material and payments, and the company has upped the oursber of suppliers on the network from

250 to more than 600. Now J. C. Penney is experiment

ing with advanced color imaging systems over EDI to help the company quickly turn around fashion designs and clothes manufacturing with several suppliers overseas. The alliance will get oew clothes into the U.S. market faster, where they will be sold under the J. C. Penney label.

USC's Davidson sees more such strategic alliances - or "coprocessing clusters," as he calls them forming among U.S. businesses There are going to be extensive octworks in every business, Davidson reasons, and the core element of every business strategy is going to be

its corporate networking strategy. "Once you've decided what networking strategy you're going with, you've also chosen who you're going to do business with," Davidson

Take Galileo, a reservation system now being put in place by a consor-tium of 10 European and U.S. airline

MORE REASON TO CHARGE H

ADVANCES IN SOFTWARE and networking are bringing about some major changes in the credit card culture.

Technology has made possible such marketing alliances as the American Advantage program, which uses links between the Citibank Visa network and American Airlines' Sabre reservations network to enable Ciribank Visa card holders to tally extra frequent-flier miles. Even the purchase of furniture or food at certain restaurants will boost a card holder's mileage under the Advantage alliance

However. "where we really see networks benefiting our business is not in marketing but in customer service," says Bill Ahearn, a spokesman for Citibank. Ahearn points to Citibank's current arran with Federal Express to replace lost cards. Guaranteeing lost cards will be replaced within 24 hours, Citibank has established a network link between its computers and the computers of Federal Express. Together, the computers track the creation and shipment of new cards to custom

ers through the Federal Express hub in Memphis. Look for advances in

computer technology to make for some unusual alliances in the credit card industry. The Genesis project at American Express, for example, will employ expert sys-tems, relational databases and advanced networking

AMERICAN'S ADVINTAGE program offers frequent-flier miles to Citibank Visa users. the company's mainframes and minicomputers and create in-depth per-

sonality profiles of selected customers. American Express will theo take the data and work with restaurants, tels, fashioo establishments and other businesses to create pers ized itineraries for its customers before trips, making the most of the

56 Computerworld Focus on Interestion

She just discovered the difference in using IBM and DEC.

None.



Street, Market is not of each to be barried. Comparison Sciences NGS/SMC telescopes Family of conscribing solutions is no transparent than IBM users tell us they literally some they be accusing DEC modes. He was a support of the contraction of the contraction

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BM SNA network.

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IBM/DEC network can be controlled using NotView network management tools and commands from a single

operator console.

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All this opens up enormous possibilities. For example, a financial institution with offices in New York, Chicago and Los Angeles can seamlessly tie together their

Imaginel You can access the mainframe without opening a manual.

three DECnet networks over SNA to speed electronic funds transfer.
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companies. It is an expensive system, costing more than \$100 million to build, with enormous network and network management systems requirements, but the expenses will be spread across several companies. The consortium far transcends the ability of even large members, such as British Airways, to create competitive individual revenzation systems.

Enabler, enforcer
Nor only is technology an enabler, in four quick exist into han fortun cases it can also force compasize to work together, chains F: system, it might have where McHarlan, professors at Hart—can it is some fame to the contract of the most times butters. Administration, For articles:

The contract of the most times to the most times of the contract of the contra

controlling interest in a reservation system such as Galileo, with its ties to hotels, resorts, credit cards and other businesses. Not to be involved in such an integrated system can put an airline in a tensous business posi-

Gon. puter companies.

McFarlan contends that one of the most successful allimatjor reasons the ill-fated People's ances Cincom has brought about,

Express discounts airline went under as was its inability to match American Cicumber of the control of the control of the American Airlines updated its system of to enable it to price every airline seat; to to enable it to price every airline seat; to independently. That, in rure, enabled American to discount those seas that competed directly with People's Express, undercutting People's prices. The discount airline's system was co

competed arrectly with reopie's 1.x.

The discouse arifine's system was no nearly as developed, and it made a CLMO table early in its own integrated reservation system, it might have beaten Ameris.

Even the computer industry, one of the most intensely intracompedtive businesses, is looking at the benefits of strategic alliances.

benefits of strategic alliances.

For example, Cincom Systems, Inc., a software company in Cincinnati, has created a separate division to help identify and create strategic marketing alliances with other com-

er says Bill Dorsey, vice-president of Cilcom's Serategis' Alliances division, is the CIM Alliance, a band of eight manefacturing and hardware vendors that exchanges technology, dinformation and joins together on major manufacturing bids. Each CIM Alliance momber, Dorsey claims, brings something to the

sey claims, brings something to the computer-integrated manufacturing (CIIM) table that no other single member possesses. For example, Live lost lost states, Inc. brings with it integrated shop-floor manufacturing lanegraph brings CAD, Sytonecic, Inc. brings project managements and Cyborg Systems, Inc. offers human

resources and payroll planning.

Together, Dorsey says, the vendors can field the kind of complete
CIM product and synergy lacking in
even the largest computer manufacturing firms.

Today, because customers are more impacient and won't wait while a vendor develops a new technology, vendors are looking for technical and marketing help through alliances.

Computerworld Computerworld Focus on Integration

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BEATING THE bugdet BLUES

A GUY IN a pinstripe suit and wing tip shoes is in your office. He's asking you about the three Cs: cost reduction, cost containment and cost effectiveness. You cringe. You wince. You roll your eyes.

Drawing up a budget isn't what it used to be. At one time taken for used to be. At one time taken for granted, data processing operations have now become strategic informa-tion systems. What used to be a sim-ple matter of networking expendi-tures has evolved into a full-blown mandate for integration.

It's not uncommon for the words It's not uncommon for the words "strategie" and "integration" to give rise to anxiety at 15 budget time, ob-serves Jerry Kanter, executive ditec-tor of the Center for Information Management at Babson College in Wellesley, Mass. "Strategic informa-tion is a nebalous concept."

But if an information system man-mare knows, what new kinds of data

er knows what new kinds of data ne applications are supposed to pro-uce, Kanter says, or if he has alliances with senior managers who will support the IS budget as a means to schieve corporate goals, drafting a fi-nancial plan for integrating computer



nology for Scott Paper Co., a multi-national corporation that deals in costed paper and personal care and cleaning products. sources won't be a fearsome task... Does that mean the tried-and-true budget formulas will work under the integration mandate? Not necessarily. And that can be a plus. As one IS executive describes it, his company's

gration mandate made I prompted a whole new outlook. proach to how you fund things. Tom Cochrane, director of int

odels for each country in which it tion systems architecture and tech-

"We're managing future costs instead of saying we're going to cut working on our technology for a number of years so that this route

would be doable Scott Paper has a mix of IBM 3090 mainframes and Personal System/2s, Digital Equipment Corp. midrange computers and Hewlett-Packard Co. machines. For communications, the company uses Ethernet in manufacturing, IBM's Token-Ring network in the office and IBM's Systems Network Architec-

mee for wide-area networking. As part of the macro technology approach to integration, Scott Paper redefined the role of its large processors to perform data and network management, its workstations to develop applications, its mid-range systems to direct manufacturing. Also, to save money. Scott Paper is shifting to internally developed, software-de

fined networks instead of leased lines, he adds. Citing competitive reasons, Cochrane declines to reveal the percentage of cost savings. Instead, he expli the budget goal of "achieving a 25% annual rate of the utilization of technology and a manufacturing cost growth rate of 10% to 15%."

Customized where it counts Now that Scott identifies the hardware platforms by function, the firm is focusing on "pure custom-built applications for sales and marketing," Cochrane adds, "Our focus is on cus

tom development where we can get mperitive advantage."

The name of Scott's profit game is market share - either maintaining it or increasing it - so it's easy to see why tailor-made applications are the way to win a greater portion. But instead of coming from a single source, data fed into these programs comes from a variety of platforms because of the buying patterns established years ago when each division purchased computers independent Therefore, the budget grows in proportion to the amount and variety of data from the various divisions.

Customization takes a large piece of the budget pie for almost any orga-nization. The difficult part of bud-

ing custom projects is that it is hard to figure just how large a piece of the budget they will take up.

"Certainly growing [an] integra-tion project is taking up more of the MIS budget," says Hal Lockhart, a senior consultant at Technology Concepts, Inc., a Bell Atlantic Corp. subsidiary in Sudbury, Mass. He esti mates that an integration project could cost between 10% and 25% of

the overall conversion cost. "It's tougher in the second round

because the project becomes more involved with software development," he says, referring to custon ized applications. It is the first round that can be characterized as a cost saver because IS can see results in the first two years of an integration implementation, he adds. Indeed, the first-time integration

PLANTAVISL PC-FOOLISH

MANY EXECUTIVES VIEW integration as an expensive proposition, observes Marry Gruhn, vice-president of The Sierra Group, Inc., an in-

ation systems research concern in Tempe, Ariz. "If a recession hits, it could put a damper on innovative purchases," she explains. "S executives will protect their mainframe investments but not their systems integration implementations. A halt will be put to

purchases of PCs, LANs, file servers — all those innovative pro and technologies associated with systems integration," she adds.

sist technologies associated with systems integration," the side.

Grish bases her comments on regular monthy surveys of 100 toptects of Corp. a New York investment with a
"when there's a softens in their company's one business, MS is
going to out the enting," Grains explains about the scaling back of parity of the streng, "Grains explains about the parity has been a
point on out the enting," Grains explains about the parity has been a
point of the streng, and the strength of the stren

recession hits because P.A. are considered asserted asserted as to be curtailed, Gruhn says, are minioromputer purchases.

"They are committed to keeping up with mainframe enhas she emphasizes. And IS executives will continue to buy appli one companies. Thus to executives was contained to may apposition de-velopment tools because they say getting rid of the backlog is very im-portant to them, she adds.



budget may be the easiest to nail down. Call in your first vendor and say, "Prove it," Make vendors show you the cost benefits of their prodners. Cost justification is vital, especially if you're in an extremely cut-

throat industry — like shipping.

David Beatty, 1S director at Westwood Shipping Lines Co. in Seattle, will ship anything from an-tiques to boats to rooks. He was told to come up with an integrated plan that would tie in shipping agents in eight U.S. cities, Japan, Korea and 21 European offices in which cargo is secured, bills are paid and messages are sent and received - and to do it

at the lowest cost. Beatty budgeted for a gateway strategy that begins with a bridge be-tween Westwood Shipping's 1BM 3090 and a 10Net Communications local-area network and then goes on to connect an IBM System/36 and a second 3090. The connection is made via a Trisystems Corp. 5250 bridge. Westwood Shipping also has communications gateways to an asynchronous electronic mail system from Tymnet/McDonell Douglas Network Systems Co. and a Gamma

Fax facsimile card for fax machines. Fax facsimile card for fax machines. Beatty estimates the gateway strategy allowed his firm to save \$300,000 in its first year. "It eliminated a need for hardware redundancy," he explains, listing the big ticket items of tape backup systems, main-frame connections, hard drives, laser

frame con . The strategy fits neatly with Westwood Shipping's integration definition: "We let people share data and try to avoid rekeying the same

information," Beatty explains. Redundancy isn't restricted to ardware. It can also occur with data. Twice as much information doesn't always equal twice as much return on investment. In fact, too much of the

same data may lower profits. New heights of integration Imagine a construction site. The buildings are nearly ready, save for the elevators you are there to install. But the cages are missing. Or maybe this time it's the floors. Manually inputting elevator design data into an

RECESSION?! WHAT RECESSION?

YOU'VE READ ABOUT Wall Street's bulls and bears You've also read about monetarists and supply-siders.

Now, as you ready your integration budget, you can read about Old Wave and New Wave economics.

The New Wavers see a "cheerier course for the economy," says Dr The New Wavers see a "hencire course for the economy," asys 13th. Edward Yardeni, she feel cosomists for Prudestial-Backe Securities in New York in his April 19 balletin, "Money and Basiness Alert." "Capacity is growing regional all sucuous the world. As the supply side of the global economy expends, competition should intensify and should keep a lide on inflation," he explaint.
Yardeni believes American as well as Japanese and European industrialism will about the cipated layershing plans for the following reasons.

The free trade movement is gaining momentum.

 Protections will spur plant construction abroad that, in turn, will also be an effort to counter volatile exchange rates.
 Employers are substituting capital for labor to yield greater productive. Corporate alliances will spread in an effort to counter brutal global

 Small and smart computers will be bought in shorter periods of time because technological innovation is occurring more rapidly.

Yardeni unabashedly admits, "I err on the side of upbeat."

Enter Dr. Walter Fackler of the Graduate School of Busi University of Chicago. His is a more cautionary forecast about the fu-

"There's a 50-50 chance of a recession by year end because the Federal Reserve Board is excessively worried about a recession," he states. In Fackler's mind, the Fed is "too restrictive and could tip us into the ditch" by imposing higher interest rates. He sees the economy growing model

my growing moderately, estimating the rate at be-(ween 2.5% and 3%. ing for the business school for 25 years,

claims be's been right for the last 11. "I've changed my mind since last December when I didn't think we would have a recession," be says, adding that forcasting shouldn't be confused with predicting the future.

Forecasting, Fackler emphasizes, merely narrows the range of probahilising

can cause that to happen son says. That wasn't so easy. The solution? An integrated data-

At Westinghouse Elevator Co. in Morristown, N.I., that meant coming with with an integration plan th eventually came to be based on IBM's IMS, says Ed Hodgson, the company's manager of computing and com-munications. Between five and seven years ago, Westinghouse Elevator started to migrate to IMS, a remote access database done in batch mode.

Buying IMS was the easy part. But the firm "had to budget engineering

Hodgson has a \$4.5 million be et that used to run a mostly-IBM shop. "We work three years out and

we try to keep everything plain vanil-la because (new and proprietary) can kill you faster," he adds. And for good measure, Hodgson aims to jusgood measure, Hodgson aims to justify budger items as a manager responding to user needs.

His is advice worth heeding when pouling together the numbers for a budget that will satisfy corporate and the IS integration mandate. The economic times will tell just how far

and systems development people's time to write the interfaces," Hodgyou'll have to go to have quantifiable inswers for the three Cs.

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MARKETWISE

Unix machines: Favorite among

the net set , By Stan Kolodziei

Unix workstations have been on a roll lately. Unix, despite two warring camps, provides the closest thing the computer industry has to a standard multitasking operating system that is optimized for networking. And Unix workstations, predominantly using Motorola and reduced instruction set computing (RISC) processors, make

ideal network servers. No matter how you cut it. Unix workstations have en moving on distribution fronts, even into the retailing chan-nel. For further

proof. the following examples: essland, long a bastion of MS-DOS and IBM Personal Computers, lost long-time customer and high flier Compaq and then surprised the industry by signing Steve Jobs and Next, Inc. to a long-term distribution contract. Next machines are Unix machines, sporting speedy Mo-torols processors and Mach, a highpowered Unix derivative licensed

om Carnegie-Mellon University. IBM has declared that Mach will be an important network operating system to tie its RISC-based RT workstations together. • In January, Intel did a com-180-degree turn and introduced the

1860, a full-fledged RISC processor. Only two months earlier, top Intel executives were assuring analysts and eters (including myself) that the RISC workstation market was pe- charms of Unix-based Next machines

heral and "overpositioned." Now IBM is scrambling to place the fast 1860 chip into the heart of its Personal System/2 line, which will be used as network servers on IBM lo-

cal-area networks. Sun Microsystems has deemed mainstream commercial customers ready for its Scalable Processor Ar-chitecture machines. In April, the workstarion wanderkind aimed its Ry Sarah R. Kaull sales force and several new Unix

units at the desktop market and will provide links with other networks through its Network File System. • IBM bas declared that AIX, its Unix version for workstations, is as strategically important to the comp ny as its OS/2 operating system is in the PC arena. IBM will use software tools to optimize AIX use in multi-

vendor environments. · After years of downplaying Unix, DEC has let leak that it will introduce dedicated Unix workstations.

aimed at the desktop, most likely this year. These machines will have links into Dannar

You get the picture. Workstations are making a concerned bid for your time and your money. But this time, don't dismiss them as esoteric novelties, because they're bringing a los

more to the table. In light of this, Businessland's decision to carry Unix workstati not so odd. In fact, it could be the next step for other commercial computer retailers.



CORNER OTHER

Know what the left and right hands are doing

tems can help ies address the contemporary issues of quality, con tomer service and

A new type of infortion system, the cross-functional system, can tie together the loosely connected parts of the business to form a coherent whole focused on a

form a concrete wrote measurements company's goals.

Examples of nonintegrated business functions abound. In the electronics industry, high quality is an imperative for doing business. One firm spent two months frantically searching for a debilitating quality problem that caused returns to pile up and customers to seek other supers. It traced the problem to the purchasing department; a new clean-ing utensil, substituted by a supplier, was actually etching a sensitive part

instead of gently cleaning it. In the banking industry, most institutions still cannot assemble a complete picture of a customer's re-lationship with them because each department functions independently. ing a global product because different countries have different accounting systems that do not communicate. In manufacturing firms, chasms still exist between marketing, production and purchasing; marketing sells what the customer needs, not what the company has, because the functi

By Stan Kolodziei

To build an architecture that will keep pace with MacDonald's aggres-sive business system plan.

THE ICCID THE SOLUTION software programs.

Plan an open systems and networking strategy that will enable Mac-Donald's to lessen its reliance on individual vendors and individual

CARL F. DILL isn't afraid to take chances. In 1983, when most people still thought open systems meant plugging iron into IBM machines, this vice-president of information services at MacDonald's Corp. was already planning long-range network schemes that put a premium on stan-

dards over proprietary solutions. In 1985, at a time when Unix was still considered an exotic and risky software venture within commercial computing, Dill, a seven-year veteran of the fast-food corporation, began using Unix as his networking soft-

ware of choice.



OORN'S PROPILE: CARL DILL
Outside affiliations: He helped the Second Harvest nationwise food bank to operation compaterine food distribution to 18 food bank. How he relaxest and bit usife or "distincts" to gaid attential. He lates to travel with his sife and two distiphers. Last book reads: Tom Peters' Thirving on Chaos. "It points out bots to take davantage of a most demanding usual to the side davantage of a most demanding usual."

the "big drivers" of future advances One early star in Dill's push to in store automation at MacDonald's. open systems was the in-store processor (ISP), a networked Unix-During the life of the ISP project, based workstation that has been installed in about 75% of the 1,700 or so MacDonald's-owned restaurants

nationwide. The ISP machines are AT&T workstations, with all software written in C. The computers help restaurant

Dill has gone through three genera-tions of hardware and vendors without having to change his base soft-He claims that with ISP, restaurant managers can save 30 to 40

hours of paperwork a week and cut some big inventory costs. More immanagers perform cash and inventory management, ordering and crew labor scheduling, but that's only portantly, it keeps managers on the floor managing staff and serving cus-tomers instead of shuffling papers. "I seratching the surface of possibili-ties, Dill claims. He calls ISP one of like to think the company can now

turn on a dime." he explains. At a recent meeting on ISP for se-curities analysts, Dill says the initial onse was an incredulous, "My God, they're not just selling ham-

burgers."
ISP is the first stage toward a mart data network that Dill sees linking MacDonald's restaurants and regional offices with its Oak Brook, Ill., headquarters and, eventually, with MacDonald's European loca-

Dill's smart network, which he calls a "concept network," will have an infrastructure of common service routines, and it will have software that is independent of screens and

Networking ace drives toward excellence

Bob O'Rourke can talk about network links with the same ease he can talk about golf links. Like his boss Carl Dill, O'Rourke, the director of systems architecture at MacDonald's, is an avid golfer. And together, O'Rourke and Dill are setting a course for MacDonald's systems architecture through the 1990s.

"We have a pretty good understanding of what systems structure we want," says O'Rourke, an H-year veteran at MacDonald's.

"Now we're trying to get the hardware plat-forms and critical applications in place." One of those critical ap s O'Rourke is currently working on is a network that will tie Mac-Donald's advertising people and distributors together.



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HARVARD BUSINESS REVIEW

Many companies need a new approach to information technology decision making, one that blends the technical knowledge of the computer experts with the vision of senior management. One way is to establish a task force that solicits input from top management and creates a set of

principles to guide subsequent in-vestments in IT. The task force translates the language of corporate strategy into computerese. From "How executives can shape their companies' information systems by Thomas H. Davenport, Michael Hammer and Tauno J. Metsisto.

♦ f r o m ♦ THE AMOS TUCK SCHOOL OF BUSINESS (DARTMOUTH) Man + 1929

Managerial prestige - employing executives with an elite educational background, financial and boardroom clout and political influence — may be the key behind some firms' ability to come through financial trouble.

Why? Because the public perception is that prestigious people are credible, powerful, trustworthy, resource-ful individuals who can use these traits to turn around a firm's financial situation. In failing firms, there is a bailout by such "hot-shot" managers, lessening the prestige and credibility of the remaining management team. From "Top managerial prestige and organizational bankruptes" by Richard A. D'Aveni.

1 1 0 m UNIVERSITY OF CHICAGO SCHOOL OF BUSINESS

Selected nature No. 68 Compensation need oor be linked di-

rectly to output to motivate staff. Rather, workers should be judged relative to one another. But there is a disadvantage to judging individuals on how they do wheo compared with others: A worker does well not only by making himself look good but also by making his rival look bad. (Remember Dukakis and Bush?) One way to mitigate this problem is by setting up a structure in which rivalry

exists only among those who need not cooperate. From "Enhancing productivity through compensation" by Edward P. Lanear

r o m CALIFORNIA MANAGEMENT REVIEW 11 Testar 1959

The European Community has set the goal of a united Europe by 1992. The EC's coovictioo is that unit Europe's survival as an economic and scientific world power will depend oo its success in establishing a worldclass telecom industry. The EC wants to replace separate analog and digital transmission systems for voice and data, respectively, with a single

of telecommunications" by Alfred L. Thimm,

• f r o m • THE WHAPTON SCHOOL

H7mter 1987 Organizations that are successful at new business development employ divisional CEOs whose behavior promotes such entrepreneurship.
Throughout their divisions, these
CEOs inspire pervasive commitment

to new business development and build confidence in subordinates' shility to develon new businesses and From "New business develop

A challenge for transformational lead-ership" by Ian MacMillan.

• f r a : m • SLOAN MANAGEMENT REVIEW Picking the right people and foster-

ing their development in the right way makes for better subordinates. Here, "development" means using jobs and task assignments to test and strengthen junior managers' weaknesses and prepare the best of them to run the company.

From "Chutes and ladders: Growing the general manager" by Thomas V. Bonoma and Joseph C. Lawler.

from . CALIFORNIA MANAGEMENT REVIEW Winter 1989

company needs to concentrate on its assets and skills. An asset is something a business possesses, such as a superior to what the competition has. A skill is something a business does, and dish, respectively, with a single integrated digital network that will such as describing, that is bette curry voice, data, text and images. Key to this effort it ISDN.

From "Europe 1992 — Opportunit for these piece of the conjection is doing, or these for VLS. Susiness: The case and the conjection of the conjec such as advertising, that is better than what the competition is doing. From "Managing assets and skills: The key to a sustainable competitive







Are you planning to install more PC LANs? Why? We asked the question above of IS professionals around the country. It seems the quest for connectivity is

continuing, with a few detours here and there. Take a moment to compare their LAN plans to your own.



to know that it

TIMOTHY KENNEY

OPERATIONS AND

CUBIT SUPPORT

SYSTEMETRICS/

SANTA BARBARA

works first

fewer PC L4N because of a reduction in overall ctaff DOM MASON MIS DIRECTOR TEVAS CITY to buy our first TEXAS CITY, TEXAS one, for the development group We're suphests cated but not leading edge. We like

planning to buy

To Ho're purtime PC LANs in more remate laefficiency in those location and to get them comnected? BORGET THRACKED IS MANAGER PACIFICORE DMANGER SERVICES

PORTLAND, ORSG

"We've cetting ready to install our first PC LAN to connect the machines in accounting and set up a departmental database His mount to eliminate. eneakernet.

which is the way we share data ROTE LEON ALLEN MIS DIRECTOR

tionsl. They'll need to share data in a work group entiren

ment PC IANG are the technology to do that." DAVID HERSH MANAGER PSG SYSTEMS DEVELO MENT AND SERVICES

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lished everything ue need in terms of PC LANE RALPH WARREN MIS COORDINATOR BALMAR PRINTING & GRAPHICS, INC. ARCHITECTON VA

"We're getti fewer PC LANG

We've estab

CODNED OFFICE Continued from page 65

do not talk to each other. In each of the above examples, the business challenges can be addressed by information systems that cross organizational boundaries to link key parts of the business. How can IS executives identify opportunities for these cross-functional systems? They can look for the following triggers: Long, sequential processes with limited feedback. In many cases. there is a need for coherence and linkage. For example, many companies have developed systems to connect the many steps of order process-

ing and accounts receivable. · Intensive information transfer or exchange. These activities are a substitute for a natural connection. · Multiple points of external contact. This invites inconsistency. Banks

ACHIEVEDS · Tight feedback loops. This is a sign of breaking un functions unnaturally. Some firms are moving to integrate dependent functions such as purchasing and quality assurance. · Ad hoc organizational structures such as task forces or coordinators.

Companies should make these activities regular, with systems providing the organizational framework. Identifying and implementing cross-functional systems is hard work. But the payoffs in terms of streamlining, simplification and achievement of important business

goals can be tremendous. KAULL is the associate director of the Partnership for Research on Information Systems Management (PRISM), a joint menture of the Index Group, Inc. and Hammer & Co. PRISM, in Combridge, Mass., dues research for have responded to this problem with sponsors from Fortune 200 corporations

CHEMICALS, INC.

Continued from page 65 that runs freely across application

and processors.
"We want to protect the applica-tion from its environment." Dill explains. If he has his way, that environment will be completely open and integrated in applications, data, communications, hardware, software and IS human resources. The Integrated Services Digital Network, which will integrate voice and data, is expected to be a part of the smart network in the 1990s, Dill says,

But some things, Dill is certain, will never change at MacDonald's. Every so often, for example, key management people from MacDonald's top computer vendors still enter the company's restaurants to get a ground-level view of the operation. And they do it the old fashioned way:

slinging burgers.



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0165 about integration hassles, successes, failures, ideas. See you August 7 with more integration strategies. Sales Offices

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June 5, 1985

Comparemental Facus on Enterpreting 71

JUST DESERTS The day before Connector Fall, I was behind the wheel of the last vehicle rented in Las Vegas having a conversation with a marcom guy from a computer compary. Tooling around 2,000 acres of a national widdlife refuge in a GMC Suburban searching for red-tailed hawks and looking at limestone formations wasn't a guarantee that work wouldn't come up in the conversation.

Even though Comdex is long past, the discussion is worth recalling because the information industry is facing a revolution that will

On the road order. If you aren't sure what order. If you aren't sure what order order order order.

a concept, it causes the kind of chills that "strategic systems" does, read on.

This marketing bloke has a background in

I his marketing bloke has a totekgroulus in computer-aided design, He's also hyped motorcycles at one point in his career, so he knows how to answer cuttomer demands. He puts forth and believes it to be an imperative for economic survival that U.S. companies place the design work of engineers squarely in the center of their corporate data banks.

Sales and marketing isn't the be-all and end-all; it shouldn't be the king of IS's operations, and it alone won't kead a company for a country) out of a deficit spiral and into profitability. This is the era of getting close to the customer. Putting technical talent near to the heart of what generates income will make commanies more appealing to outstomers.

companies more appealing to customers. And I agree with him. But I'm an inquisitive reporter, so I had to

but in an impatture repotent, 30 in an or ask the questions. How it his returnagement of data priorities going to go over with the traditional IS professional? Won't there be a tarf war between design and marketing over whose data gets top hilling? Who's going to manage it? Who's going to mediate it? And then I wondered, why so many quest-

tions? An obvious answer seems to be to integrate the technical and marketing databases. Revolutions affect everyone sooner or later. Those IS executives who realize the larger business implications of this new data order

er. Those IS executives who realize the larger business implications of this new data order are in the best position to integrate the opposing sides before they dissolve into warring factions. Usually it's best to affect the necessary changes rather than being effected by them. BY HILLEY PIE.

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b in the incredible shrinking computer department: Atarl Corp. has unveiled an IBM Personal Computercompatible mechine that is about the same size as a videocasette and weighs 1 ib. The Portfolio comes with 12BK bytes of memory, expandable to 640K bytes.

to 640K bytes.

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